

CA JOURNAL

ENG NOV 22 1950

DOCUMENTS

NOV 13 1950

OFFICE OF
AVIATION INFORMATION

Duke University Library

COLLEGE LIBRARY
OF ENGINEERING
DUKE UNIVERSITY

Nyrop Forecasts Advances In Regularity of Service

Further gains in regularity of scheduled airline service can be expected as the SC-31 common air navigation system is developed, D. W. Nyrop, Administrator of Civil Aeronautics, told the Tennessee Aviation Conference at Knoxville October 27 in an address on "The CAA and the Airlines."

With the change-over of the airways from low to very high frequency, still better and more efficient aids to navigation can be expected, he said. "And I know that with the eagerness to adopt all improvements, airline operating methods will keep pace with these new aids," he added. "I'm proud of the airlines of the United States," he said, "and I am also proud of the CAA—together we have shown consistent and continuous improvement in our job of providing safe and convenient air travel for our citizens."

The steady improvement in the regularity of scheduled airline service was noted by Mr. Nyrop. "Nothing, aside from safety of course, is more important to us than this regularity because it is of fundamental importance to customer acceptance," he said. "In the year ending March 31, 1950, the airlines completed 97.1 percent of all scheduled mileage. That was an improvement over the figure of 96.9 for the preceding 12 months. Expressed in percentages, this sounds like a very small advance, but when you hear that cancelled mileage dropped from 16.9 million miles in the year ending in March 1949, to 9.6 million miles in the last year, it is impossible not to perceive the importance of this improvement."

"The CAA obviously and naturally deserves and gets some share of credit for this good record," the Administrator said. "Our excellent 60,000-mile airways system; our 7,400 skilled airways communications and air traffic control workers in 30 control centers and 193 control towers; our provision of instrument landing systems and radar precision approach aids; and the fostered collaboration between airline operations managers, airline pilots, and our air carrier agents, all have contributed to this achievement."

Progress Outlined.—Mr. Nyrop outlined progress being made in installing the new airways program, as follows: Very high frequency ranges, including the VAR's which later will be converted to VOR, 425 installed or under way; instrument landing systems, 182; high intensity approach lights, 39; distance measuring equipment, of which 15 are now being installed, will number 440 eventually, when the 425 on

order are delivered; airport surveillance radar for use in traffic control will total 57, of which 46 sets now are ordered; and precisions approach radar installations for instrument landings in operation now number 11, with an additional 14 on order.

Thus far there has been appropriated \$70,000,000 for this program, he said, representing approximately one-quarter of the amount proposed to complete the transition program. An airway system usable both by military and civilian aircraft, he declared, will be of "incalculable value to our national defense."

"The mere provision of these facilities however, obviously cannot relieve us of, nor solve, our insistent problems of a rapidly developing and changing in-

(Continued on page 127)

Stall Recovery Technique Shown Pilots by CAA

Renewed emphasis on the proper technique for bringing airplanes out of stalls will result in preventing accidents and saving lives, Civil Aeronautics Administration officials said recently in describing a Nation-wide program of reeducation of pilots, instructors, and flight examiners.

After a 60-day tour in seven Midwestern States, comprising CAA's fifth region, a specially equipped plane now is on an itinerary in the eight central States of CAA's third region, where hundreds of pilots will receive instruction in the better method of recovery from stalls. Principal difference in the technique is that the plane is not dived sharply to recover from a stall, but flown with the nose on the horizon. The result is a slower recovery from the stall, but the loss in altitude is less by about two-thirds.

For years, stalls have consistently accounted for a

(Continued on page 130)

First Airways Based on Omnirange in Operation

The Nation's first airways based on the revolutionary new "omnirange" were put into operation by the Civil Aeronautics Administration last month. Extending through six States, they connect such important air traffic terminals as Kansas City, Denver, and Albuquerque. Also linked by the new type of facility are Omaha, Wichita, Tulsa, Oklahoma City, El Paso, Fort Worth, and other cities en route.

The new routes are approximately 4,380 miles long, and are formed by the signals of 41 CAA omniranges. In all, 271 omniranges have been commissioned by CAA in different parts of the United States.

This is the first time, however, that a chain of these ranges has been designated by CAA as a controlled airway, over which qualified pilots in properly equipped planes may operate under instrument flight rules. CAA has authorized Continental Air Lines to operate on this basis.

The omnirange differs in two major respects from the conventional radio ranges which for 20 years have been the foundation of our air navigation system.

It operates on very high frequency, thus eliminating most of the static and interference which occur in low frequency transmission. In addition, the omnirange sends out courses in every direction, instead of just four. (Omnirange is a contraction of omnidirectional range.)

Flying the omnirange is relatively simple. Instead of listening continuously to dot-dash signals as on the four-course range, the pilot simply tunes in the omnirange and flies so as to keep a needle centered in a cockpit dial. Keeping that needle centered automatically "crabs" the plane into the wind just the right amount to fly a straight-line course to the omnirange.

Ultimately, CAA plans to install more than 400 omniranges for en route flying of airways, blanketing most of the United States with their signals. They will make possible not only omnirange airways of the type just opened, but off-airway flying to hundreds of points not now served by air navigation aids. Omniranges also are used for low approach and let down to airports under instrument conditions.

Proposal Would Revise Regulations On Certification of Light Planes

Proposed changes in airworthiness parts of the Civil Air Regulations were included in a draft release issued recently by the Bureau of Safety Regulation of the Civil Aeronautics Board. The Bureau said that the Board would be asked to adopt the changes in substance as set forth, effective January 1, 1951.

Changes were recommended in Parts 1, 2, 3, 4b, 6, and 15. Of major interest are proposals relating to light plane certification. Under changes proposed to Part 3, aircraft of 6,000 pounds or less maximum take-off weight would not be subject to the required service tests. Take-off, climb, landing, and trim requirements would be modified.

The draft release puts into final form recommendations for proposed CAR changes discussed at the annual review of airworthiness parts last August. The annual review to consider comments on and suggestions for amendments of airworthiness requirements was held in accordance with a policy statement of the Board dated October 6, 1949.

The Bureau said that "due to circumstances resulting from the current military situation, it was impossible to consider at the annual review meetings any of the more complicated questions in transport category airworthiness requirements. Such matters will, therefore, be handled on an ad hoc basis outside the scope of the annual review."

In an explanatory statement issued in connection with the draft release, the Bureau said:

"Part 1. Certification, Identification, and Marking of Aircraft and Related Products.—Proposed Part 1 includes a revision of current Parts 1 and 2 and portions of Part 43. It is an attempt to synthesize and systematize the administrative rules for obtaining necessary aircraft and product certification. It also provides for the identification of products and aircraft in accordance with current requirements. In most significant respects, the part does not attempt to change current procedures or practices, but merely to reflect them accurately.

"The most important changes from current requirements in the proposal are those affecting the duration of airworthiness certificates, and the provision in the proposal that airworthiness certificates shall be of 1-year duration automatically renewable when maintained under a continuous maintenance system, or reissued upon satisfactory completion of the annual inspection does not depart radically from current practice. In addition, the part contains new requirements designed to permit more adequate supervision of products manufactured by a subsidiary manufacturer.

"Part 3. Airplane Airworthiness—Normal, Utility, and Acrobatic Categories.—The most extensive amendments resulting from the annual review cycle are those proposed for Part 3.

"A considerable step towards simplifying type certification of small aircraft is proposed. For example, aircraft of 6,000 pounds or less maximum certificated take-off weight, will not be subject to the required service tests, and take-off, climb, landing, and trim requirements have been modified.

"In addition, the current spin recovery requirements have been modified to permit demonstration of recovery with use of normal controls, and more realistic requirements for stall handling characteristics are set forth. It is further proposed, on the other hand, to provide a requirement for stall warning indication. Analysis of available safety statistics appears to establish that such modification of the regulations would contribute substantially to safety.

"Amendments are also proposed to increase the crash load factor requirements for seat attachments

and safety belt anchorages. The values proposed are designed to increase the chance of survival in crashes where the cabin structure remains relatively intact, and are consistent with the recently established crash load factor requirements for safety belts.

"There are additional proposed amendments of a relatively minor nature, based upon experience with the requirements of the part, designed to increase safety or to facilitate administration of the part.

"It should be noted that, as a result of discussions held during the annual review meetings, serious consideration is being given to limiting the applicability of Part 3 to airplanes having maximum certificated take-off weights of 12,500 pounds or less, and to establishing a separate cargo category.

"Position Light Requirements.—The requirements herein proposed for position lights are little different in substance from those currently in effect except for certain modifications of intensity requirements for transport category aircraft to bring such requirements into conformity with international standards. However, it is our understanding that United States air carrier position light systems already meet such modified requirements.

"It is proposed that unnecessary material on position lights be eliminated from the applicable sections of Parts 3, 4b, 6, and 15. In addition, it is proposed that those sections be revised to provide a greater degree of clarity and uniformity.

"Part 6. Rotocraft Airworthiness.—Part 6, as adopted in 1945, was an initial attempt to establish standards for rotocraft airworthiness. As of that date in view of the then extremely limited experience with rotocraft, it was undesirable to specify too rigid standards which might have had the effect of restricting the development of rotocraft. At the present time, in view of the rapid development of this category aircraft since 1945 and increased engineering and operational experience with it, it is possible to specify certain additional standards which must be met for type certification. However, we recognize the fact that rotocraft are still in a developmental stage where the contribution to safety from a more rigid prescription of standards than proposed would probably be outweighed by the depressing effect of such prescription on new developments from manufacturers in the field and on applications for type certification from manufacturers not yet in the field.

"The proposed revision of Part 6 prescribes: (a) conservative added powerplant requirements, (b) more comprehensive performance, flight, and structural requirements, (c) more detailed design and construction requirements, (d) new equipment and operating standards, and (e) the compilation of flight and maintenance manuals to be furnished to operators of rotocraft. It is our opinion that this revision will substantially increase safety in the rotocraft field without unduly depressing future development.

"The part also expressly provides that the airworthiness standards to be applicable to the type design shall be those standards in effect at the time of application for the type certificate, thus expressly including in the part, the industry-sponsored principle of non-retroactivity for airworthiness standards. The holder of the type certificate, however, is given the option of complying with such standards, or with those in effect at the later date for subsequent amendments to the

(Continued on page 123)

Vol. 11 November 15, 1950 No. 11



CAA JOURNAL

DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

Civil Aeronautics Administration

Donald W. Nyrop, Administrator

Ben Stern, Director

Office of Aviation Information

Issued on the 15th of each month by the Office of Aviation Information. Subscription 75 cents a year in the U. S. and Canada. Foreign countries, \$1.00. Sold by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The printing of this publication has been approved by the Director of the Bureau of the Budget, June 29, 1949.

CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board.

Administration

Committee Eases Way of Air Travelers Crossing Borders—(October 4).

CAA Refreshes Pilots and Agents in Stall Techniques—(October 8).

Dusters Save Cotton Crop in Dramatic Missouri Battle—(October 10).

New Seaplane Booklet Available—(October 13).
CAA Begins Operation of Nation's First "Omni" Airways—(October 20).

Address by Donald W. Nyrop, Deputy Administrator of Civil Aeronautics, International Northwest Aviation Council, Sun Valley, Idaho (September 29, 1950). "Civil Aviation's Preparations for Defense."

Address by D. W. Rentzel, Administrator of Civil Aeronautics, National Association of State Aviation Officials, Minneapolis, Minn. (October 3). An address concerning an inventory of CAA's activities.

Address by D. W. Nyrop, Administrator of Civil Aeronautics, Before the Tennessee Aviation Conference, Knoxville, Tenn. (October 27). "The Airlines and the Government."

Board

Board Issues "Cost Standards—Domestic Scheduled Air Carriers"—(CAB 50-54) (September 22).

Employee Protective Conditions Determined by CAB in North Atlantic Route Transfer Case—(CAB 50-55) (September 22).

CAB Permits Continued Operation of Air Coach Services—(CAB 50-56) (September 27).

Civil Aeronautics Board Defers Decision in Michigan-Wisconsin Service Case—(CAB 50-57) (September 29).

Rentzel Sworn in as CAB Chairman—(CAB 50-58) (October 4).

CAB Chairman Names James M. Verner Executive Assistant—(CAB 50-59) (October 16).

Weather Data for Pilots Given

Realm of Flight, a CAA publication giving practical information about the effect of atmospheric conditions upon flight, is on sale for 60 cents by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Adoption of New Part 40 Proposed By Bureau of Safety Regulation

Adoption of a new Part 40 of the Civil Air Regulations, to present in one document the certification and operation rules for air carriers engaged in scheduled interstate, overseas, or foreign passenger air transportation utilizing multiengine aircraft, has been proposed by the Bureau of Safety Regulation of the Civil Aeronautics Board. Generally it is proposed to apply the same standards to all scheduled passenger operations, but in a few instances, because of the inherent differences between interstate and overseas or foreign air transportation, certain provisions would be made applicable only to one or the other class of operations.

The Bureau said that in the preparation of the proposed new part consideration was given to the recommendations made by the President's Special Board of Inquiry on Air Safety and that several proposals are responsive to such recommendations.

The proposed new part, which would revise Parts 40, 41, and 61, was published in the Federal Register October 5. Interested persons were invited to participate in the making of the proposed rules by submitting such written data, views, or arguments in duplicate to the Bureau by January 10, 1951.

The Bureau issued a statement explaining various proposals. Regarding inspection organization, the statement said:

"It is proposed to require that the air carrier's maintenance inspection organization be independent of the maintenance organization. In effect, this would require a senior operating official of the company to rule upon disputes between maintenance and inspection rather than permit a shop foreman to overrule an inspector as to the condition of an aircraft. It should be noted that many air carriers have already adopted this organizational structure, and our information indicates that it is functioning satisfactorily."

Regarding other proposals, the statement continues:

"Aircraft Requirements.—Under current provisions there are no specified performance standards for aircraft type certificated prior to June 30, 1942, used in transport service, unless the operator elects to comply with the transport category performance requirements. Revised Part 40 would specify alternate performance requirements for those aircraft which do not comply with the transport category requirements. The requirements proposed are identical with those which have, since January 1, 1950, been applicable to irregular air carriers.

"This proposal stems from the fact that there are no generally accepted performance standards for such aircraft among the scheduled air carriers, and follows the expressed precept of the Board and the industry to have identical requirements insofar as possible for scheduled and irregular air carrier operations."

Proposed Part 40 generally requires the same equipment and aircraft instruments as under present rules. It is proposed, however, to strengthen the requirements for emergency equipment.

The proposed new part would establish a more flexible reserve fuel requirement and, for the first time, proposes safety standards for aircraft operated by more than one carrier under an interchange agreement.

Regarding proposed changes in flight time limitations, the Bureau said:

"Flight Time Limitations.—The current provisions of Parts 41 and 61 with respect to flight time limitations are not consistent; moreover, Part 61 does not establish flight time limitations for flight crew personnel other than pilots. The current daily limitations may be briefly described as limiting pilots in a two-man crew to fly 8 hours, permitting a three-man crew consisting of two pilots and an additional airman to work 12 hours on the flight deck, and establishing no daily limitations for a crew of 3 or more pilots and an additional flight crew member. In effect,

Part 41 limits flight engineers and flight radio operators to 12 hours of flight deck duty unless two such airmen are on board, in which case no daily limitations are prescribed. There are no daily flight time limitations for flight navigators. Monthly limitations of 100 hours of on-duty time are currently prescribed for 2-pilot crews, and 120 hours for crews having 2 pilots and 1 additional flight crew member in international overseas air transportation, a 3-month limit of 300 hours for 'single crews,' and a 3-month limit of 350 hours for airmen in 'multiple crews' in such transportation. In domestic service, under existing law, 85 hours is the maximum monthly flying time for pilots.

"In general, the rules contained in the proposed part would provide the current daily limitations for a two-pilot crew; but for crews of three or more airmen, whether today considered as a single or multiple crew, the rules have been considerably changed. For flight within the continental limits of the United States, there is an 8-hour maximum flight deck duty prescribed, except where the flights are nonstop or where an intervening rest period is given when a maximum of 12 hours is permitted. For flights outside the continental limits of the United States, the maximum flight deck duty is 12 hours.

"Additional new provisions permit the Administrator to authorize periods in excess of 8 hours to provide more healthful or advantageous rest periods, and to provide that deadhead transportation immediately prior to flight deck duty assignment shall, if in excess of 3 hours, be considered as duty aloft.

"It has been proposed by flight engineer groups to limit flight deck duty time for flight engineers to 8 hours where only one is on board, since it is claimed that the nature of the duties performed by a flight engineer exceed in intensity those performed by either pilot in a two-pilot crew. While we recognize that this recommendation may have merit, we have not had sufficient time to consider it fully for inclusion in this proposed rule. For example, the same justification may be applicable to a single flight radio operator or navigator. We intend to consider this question again in light of the comment received.

"The quarterly and annual flight time limitations contained in the proposed part correspond generally to current requirements."

Regarding other proposals, the Bureau's statement continued:

"Training Program.—Under current regulations the only prescribed training program is for pilots and mechanics. Proposed Part 40 provides for crew and aircraft dispatcher training and places greater emphasis on this aspect of a carrier's operations than is now the case. It is intended that flight crew coordination be stressed throughout the training program. In addition to original qualification training, provision is made for recurrent annual refresher training.

"Route and Airport Qualification.—Proposed Part 40 restates and clarifies the route and airport requirements for both pilots and aircraft dispatchers, and establishes qualification requirements for each group of airmen which must be met prior to engaging in any scheduled passenger operations. With respect to all such airmen this proposal places greater responsibility on the air carriers to insure that they are fully and properly qualified. The essential changes contained in this proposal relating to pilots are to

require them to qualify at each regular, provisional, and refueling airport for the trip to which they are to be assigned, and to place greater emphasis on the familiarization with individual airports, their letdown procedures, and surrounding obstructions rather than on the area between such airports, except in the case where operations are conducted at or below the level or adjacent mountainous terrain. In the latter instance both types of familiarization are required. This proposal also requires pilots acting as second in command of crews having three or more pilots, as well as pilots in command (first pilots), to meet these qualifications.

"With respect to aircraft dispatchers the proposal differs substantially from the current requirements in that emphasis is placed upon qualification over the area over which a dispatcher is to exercise dispatch authority rather than on qualification over each route in the area.

"Pilot Certification and Instrument Qualification.—Generally, the proposed qualification requirements for pilots are similar to current regulations, although they have been clarified and restated. However, it should be noted that this proposal requires all pilots to hold airline transport pilot certificates (see proposed revision of Part 21 published in the Federal Register on July 18, 1950) and permits pilots to take their 6-month instrument check in any type of aircraft which the air carrier is authorized to use in scheduled operations rather than in a type to be flown by them in such operations.

"Flight Radio Operator Requirement.—Current provisions of Part 41 relating to the requirement for flight radio operators have been interpreted as requiring a flight radio operator only where the normal communications require radiotelegraphy. However, the Bureau is of the opinion that in special situations in the interest of safety a flight radio operator may be required under conditions other than those in which radio telegraphy is necessary for air-ground communications. Therefore, we propose to expand the discretion of the Administrator in this regard to permit him to require a flight radio operator when normal communications, whether voice or telegraphic, cannot be safely conducted by the pilots at their station."

Bureau Proposes Changes In Airworthiness Rules

(Continued from page 122)

type design. Procedurally, it is provided that the part, as amended, on the date of application for the type certificate shall be considered to be incorporated in the certificate. Such a provision shall be made applicable to current Part 6, thus making possible the promulgation of the proposal contained herein as revised Part 6, rather than Part 6b.

"Part 15. Aircraft Equipment Airworthiness.—In accordance with the program announced with the adoption of enabling amendments to the Civil Air Regulations authorizing the establishment of the T. S. O. system for approval of aircraft appliances, it is proposed to eliminate sections 15.21 and 15.31 from Part 15 providing for the type certification of landing flares and parachutes, since it is expected that technical standard orders for such equipment will be adopted and effective by January 1, 1951.

"It is also proposed to eliminate sections 15.40, 15.50, and 15.51 providing for certification of control and structural units and particularized equipment for aircraft types since these provisions have not proven to be useful to the industry.

"As previously mentioned, section 15.20 on position light systems is to be revised to provide a greater degree of clarity and uniformity and to modify certain of the intensity requirements for transport category aircraft to bring such requirements into conformity with international standards."

Official Actions Civil Aeronautics Board

Regulations

PR-7-----Effective September 15, 1950

Promulgates Part 303 for the purpose of making known to the public the Board's procedures in aircraft accident inquiries.

PR-8-----Effective September 15, 1950

Promulgates Part 311 to make provision for and to regulate the conduct of the Board's employees in regard to the disclosure of aircraft accident investigation information.

(For text of the Board's explanatory statement of this part, see page 125 of this issue of the CAA Journal.)

SR-354-----Effective October 11, 1950

Authorizes the Administrator to issue or authorize the issuance of a pilot certificate with a private pilot rating to an individual who successfully completes a flight curriculum established by the Institute of Aviation of the University of Illinois, with stated provisions, the regulation to terminate October 11, 1951, unless sooner superseded or rescinded.

SR-355-----Effective October 16, 1950

This special civil air regulation authorizes a flight curriculum for primary flying schools identical to that authorized by special civil air regulation SR-336, which by its terms expired October 18, 1950. In addition, SR-355 authorizes a graduate of this course of training who passes his examination for a private rating to credit not more than 10 hours of the "dual instruction-observer" time as dual instruction flight time and to obtain a private pilot rating without any endorsement based upon the flight time completed. SR-355 is to terminate October 18, 1951, unless sooner superseded or rescinded.

Safety Orders

S-366 denies request of Linwood W. Eure for oral argument; amends order of the examiner dated April 3, 1950, so as to revoke respondent's airman pilot certificate, effective September 29, 1950; orders that he shall not be issued any type of airman pilot certificate prior to the 29th day of September 1951, and shall not hereafter be issued any type of flight instructor rating (Sept. 19).

S-367 terminates proceedings in regard to the pilot certificate of John Pope (Sept. 28).

S-368 denies motion of Regina Cargo Airlines to vacate the emergency suspension order serial No. S-361 (Oct. 2).

S-369 dismisses appeal of William H. Hirschaut for a medical certificate (Oct. 2).

S-370 vacates the examiner's initial decision issued July 31, 1950, suspending private pilot certificate of Richard B. Stout for a period of 45 days, and remands proceedings to the examiner for further proceedings (Oct. 2).

S-371 denies request of B. S. Nadiak for additional time to file a petition for reconsideration of order serial No. S-363 until October 10, 1950, and for additional time thereafter to file a brief in support of his specifications of error (Sept. 29).

S-372 suspends pilot certificate of Joseph B. Kuhn for 40 days beginning October 14, 1950 (Oct. 4).

S-373 dismisses appeal of Lawrence Elmer Shue; affirms order of examiner to become effective on October 16, 1950; orders that respondent shall not be issued any type of airman pilot certificate prior to April 16, 1951 (Oct. 6).

S-374 grants George Stephen Wright opportunity until October 24, 1950, to request a hearing *de novo* in this proceeding (Oct. 9).

S-375 grants request of Republic Steel Corp. for waiver of § 9.3 (a) of the Civil Air Regulations, as amended, with stated provision (Oct. 5).

S-376 grants request of C. B. Moore for waiver of § 22.13 (g) of the Civil Air Regulations, as amended (Oct. 11).

S-377 grants Grand Central Aircraft Co. request for waiver of § 9.3 (a) of the Civil Air Regulations, as amended, with stated provision (Oct. 13).

S-378 orders substitution of the name of Donald W. Nyrop for that of D. W. Rentzel in all proceedings pending before the Board in which D. W. Rentzel, Administrator of Civil Aeronautics, is complainant (Oct. 13).

Suspensions

Private pilot certificate of Peter E. Merry, Seattle, Wash., suspended 6 months from June 19, for attempting to start an aircraft by hand from the outside of the plane when the aircraft was not tied down or chocked and when the passenger in the plane was not familiar with the operation of the plane. The aircraft started, ran approximately 200 feet, and struck another plane, doing severe damage to both aircraft.

Commercial pilot certificate of Henry Milton Heath, Hagerman, N. Mex., suspended 6 months from July 7, for low flying near Allison, Colo. He struck and broke a power line.

Private pilot certificate of Hiram Wilson Henline, Blackwell, Okla., suspended 30 days from May 30, for beginning a flight without familiarizing himself with available information, for flying within a control zone of Wichita Municipal Airport when the ceiling there was less than 1,000 feet, for failing to have a medical certificate in his possession, for operating an aircraft under instrument flight rules when he had not filed a flight plan and when he did not hold an instrument rating, and for entering the control zone at Wichita without obtaining clearance from air traffic control.

Private pilot certificate of Joseph A. Shores, Stuttgart, Ark., suspended 6 months from July 20, for low flying over a congested area.

Private pilot certificate of James Clair Fisher, Grand Junction, Colo., suspended 70 days from July 21, for low flying.

Student pilot certificate of Sylvester Joseph Oberfoell, Dubuque, Iowa, suspended 60 days from July 27, for operating an aircraft in solo flight when he had not previously passed a written examination on pertinent provisions of Parts 43 and 60 of the Civil Air Regulations dealing with visual flight rules, and when he had not been found competent by a flight instructor to make such flight and when authority for the flight had not been endorsed on his student pilot certificate by an instructor.

Student pilot certificate of George Amis Langham, Memphis,

Tenn., suspended 60 days from August 1, for flying over a congested area of Memphis at an altitude of less than 1,000 feet.

Student pilot certificate of Loy Knox Faulkner, Memphis, Tenn., suspended 60 days from August 1, for flying over a congested area of Memphis at an altitude of less than 1,000 feet.

Commercial pilot certificate of Stephen M. Osborne, Winston-Salem, N. C., suspended 30 days from August 4, for operating an aircraft within the control zone of Smith Reynolds Airport, Winston-Salem, when the ceiling was less than 1,000 feet and the visibility less than 3 miles without prior authorization from air traffic control.

Private pilot certificate of J. W. Newton, Jackson, Miss., suspended 6 months from July 31, for low flying and for performing turns and circles at treetop altitude over and around houses near Magee, Miss.

Private pilot certificate of M. L. Compton, Bartow, Fla., suspended 30 days from July 26, for operating an aircraft within the control zone of Hawkins Field when the ceiling was less than 1,000 feet and the visibility was less than 3 miles without authorization from air traffic control.

Private pilot certificate of Joseph J. Musumeci, Swedesboro, N. J., suspended 90 days from July 28, for piloting an aircraft, carrying a passenger, when he did not have a medical certificate in his possession, and for low flying.

Revocations

Air agency certificate of Aviation Industries, Inc., Coeur d'Alene, Idaho, revoked for submitting improper vouchers to the Veterans Administration and making false entries in log books.

Nonscheduled air carrier operating certificate of S. S. W., Inc., Oakland, Calif., revoked, for violating the provisions of various sections of Part 42 of the Civil Air Regulations.

Private pilot certificate of George P. Kelly, Dupont, Colo., revoked, for operating, on two occasions, an aircraft for hire and giving flight instruction although he did not possess the airman rating of commercial pilot and flight instructor.

Student pilot certificate of Lester Dale McLaughlin, Corydon, Iowa, revoked, for carrying his wife as a passenger on a flight which ended in an accident in which the aircraft was damaged but the occupants escaped without injury.

Private pilot certificate of Criss Thomas, Springfield, Mo., revoked, for flying at tree-top level over Seymour, Mo., and for making steep turns at low altitude over the town.

Private pilot certificate of Delmar Hull, Vance Air Force Base, Okla., revoked, for taking a plane from the Municipal Airport at Horton, Kans., without the owner's permission, and operating the aircraft when it did not display and was not equipped with position lights. The flight ended half a mile west of the airport in an accident which completely demolished the aircraft.

Private pilot certificate of Richard John Plender, Great Falls, Mont., revoked, for operating an aircraft while he was under the influence of intoxicating liquor and when he did not have valid pilot and medical certificates in his possession, and for carrying a passenger who obviously was under the influence of intoxicating liquor.

Private pilot certificate of Frances Albert Smith, Marlow, Okla., revoked, for piloting an aircraft into clouds while flying under visual flight rules near Randlett, Okla., for piloting an aircraft under VFR when the visibility was less than 1 mile, and for piloting an aircraft within 350 feet of a house. A few minutes after takeoff from Wichita Falls, Tex., in light drizzle and fog, he flew into solid overcast, clouds, and fog, lost his bearings and crashed the aircraft. He was injured but a passenger escaped injury.

Private pilot certificate of Jack Pierce, Henrietta, Okla., revoked, for low flying over a congested area of Idabel, Okla., and above a person driving an automobile on a public highway, for piloting an aircraft after darkness when the plane was not equipped with position lights, and for piloting an aircraft while he and a passenger were under the influence of intoxicating liquor. The aircraft struck some trees, crashed to the ground, and was completely destroyed by fire. Neither occupant was seriously injured.

Private pilot certificate of Paul Howard Howell, Jr., Richmond, Va., revoked, for carrying three passengers, an adult and two children, in an aircraft certificated for two persons. While making an approach for a landing, he stalled the aircraft and apparently spun in. The passengers were not seriously injured, receiving only minor scratches and bruises, but the aircraft was totally demolished. A CAA investigation showed that the aircraft was overloaded and that this was a contributing factor to the pilot's inability to control the aircraft during the landing.

Airline Orders

E-4487 approves certain agreements embodied in the resolutions and recommended practices of the seventh meeting of traffic conference No. 2 of IATA; defers action on CAB No. 4352 R 12 pending decision of the Board in docket No. 2737, et al. (August 3).

E-4488 approves certain agreements embodied in the resolutions and recommended practices of the sixth meeting of traffic conference No. 3 of IATA; defers action on CAB No. 4353 R 8 pending decision of the Board in docket No. 2737, et al. (August 3).

E-4489 approves certain agreements embodied in the resolutions and recommended practices of the joint meetings of traffic conference Nos. 1, 2, and 3 of IATA; defers action on CAB No. 4354 R 31 pending decision of the Board in docket No. 2737, et al. (August 3).

E-4490 approves certain agreements embodied in resolutions of the traffic conferences of the IATA adopted at Mexico City, Mexico, in November 1949 (August 3).

E-4491 opinion and order amend United's certificate of public convenience and necessity authorizing it to engage in overseas air transportation with respect to persons, property, and mail between the coterminal points San Francisco and Los Angeles, and the terminal point Honolulu, T. H.; applications denied in all other respects (May 15).

E-4492 orders investigation of, and suspends to November 2, 1950, certain fares and routings proposed by Eastern in tariff No. C-2, CAB No. 26 (August 4).

E-4493 dismisses application of Andrew Flying Service for an exemption order pursuant to section 416 (b) of the act (August 4).

E-4494 grants petitions of Hawaiian Airlines and the Post Office Department to intervene in the matter of Trans-Pacific Airlines' application for an amendment of its certificate of public convenience and necessity for route No. 99; denies motion of Trans-Pacific (August 4).

E-4495 orders Northwest Airlines to show cause why the Board should not fix a certain temporary mail rate in its overseas and foreign operations (August 7).

E-4496 authorizes Northwest Airlines to suspend service temporarily at Seoul, Korea, on its international route between the United States and the Orient (August 8).

E-4497 grants E. W. Wiggins Airways temporary exemption from provisions of section 401 (a) of the act so as to allow it to serve Norwood, Mass., on its route No. 79, pending availability of adequate airport at Taunton or Brockton, Mass. (August 8).

E-4498 denies petition of Colonial Airlines in the matter of mail rates over routes 71, 71-F, 72, and 72-F (August 8).

E-4499 grants and denies leave to intervene in the matter of the renewal of temporary certificates held by Frontier Airlines and suspension of services by United at Rock Springs and Cheyenne, Wyo. (August 8).

E-4500 grants permission for expeditious use of Trans-Texas of airports on segment 6 of route No. 82 (August 8).

E-4501 grants petition of Northeast Airlines to intervene in the matter of the application of United for an amendment of its certificate for route No. 1 (August 8).

E-4502 dismisses application of Los Angeles Air Service for an amendment under section 416 (a) of the act (August 9).

E-4503 grants permission for expeditious use by Trans-Texas of Pecos Municipal Airport on air transportation (August 9).

E-4504 fixes temporary mail rates for E. W. Wiggins Airways between points authorized under its temporary certificates (August 10).

E-4505 orders Ellis Air Lines to show cause why the Board should not fix, determine, and publish stated rates as the fair and reasonable temporary rates (August 10).

E-4506 denies application of Aero Van Express Corp. for an exemption so as to engage in air transportation (August 10).

E-4507 denies Pan American World Airways' motion to dismiss in the matter of rates from Fairbanks, Alaska, to Seattle, Wash., proposed pursuant to local and joint passenger tariff No. P-AC-1, CAB No. 54 (August 10).

E-4508 grants stated petitioners leave to intervene in the matter of the Reopened Additional California-Nevada Service case (August 11).

E-4509 grants Frontier Airlines exemption from provisions of its certificate for route No. 93 which would require it to inaugurate service between stated points on segment 3 prior to November 21, 1950 (August 11).

E-4510 dismisses proceeding of investigation and suspension in the matter of rates proposed by National Airlines (August 11).

E-4511 amends order serial No. E-4214 so as to permit Robinson Airlines Corp. greater flexibility in the operations serving Utica-Rome, N. Y., on its route No. 94 (August 15).

E-4512 extended to September 21, 1950, the period in which Western Air Lines had to file a petition for reconsideration of the Board's opinion and order, serial No. E-4444; denied request for a stay of the Board's decision and order (August 15).

E-4513 granted Northeast Airlines exemption until September 30, 1950, from the provisions of section 401 (a) of the act, insofar as they would prevent it from engaging in nonstop air transportation between designated points on route No. 27 (August 11).

E-4514 denies request of Braniff for postponement in the matter of the application of Val-Air Lines and Trans-Texas Airways for certificates (August 11).

E-4515 dismisses application of Air Freight Agency for a certificate of public convenience and necessity (August 14).

E-4516 authorizes Turner Airlines to suspend service temporarily at Bedford, Ind., on route No. 88, pending availability of adequate airport facilities (August 14).

E-4517 consolidates into docket No. 3605 the application of Robert Lehman and Pan American World Airways (docket 4566) for approval of an interlocking relationship; severs and dismisses in all other respects (August 15).

E-4518 fixes a temporary mail rate for Braniff Airways over its Latin American route (August 16).

E-4519 approves certain agreements between American Airlines, TACA, and others relating to intercompany arrangements (August 17).

E-4520 grants Pan American World Airways a temporary suspension of service at Marseille, France (August 17).

E-4521 consolidates into a single proceeding the applications of Aerovias "Q" and other applicants for foreign air carrier permits under title IV of the Act in the Havana-New York Foreign Air Carrier Permit case (August 17).

E-4522 orders Bonanza Air Lines to show cause why the Board should not fix a specified temporary mail rate over its entire system (August 18).

E-4523 grants Capital Airlines a temporary exemption from certain provisions of section 401 (a) of the act and of its amended certificate for route No. 14 (August 18).

E-4524 denies application of Oskid Alaska Airways for an exemption under section 291.16 of the Board's economic regulations (August 17).

E-4525 institutes an investigation of tariff practices of Pan American World Airways in connection with transportation of property between Seattle, Wash., and points in Alaska (August 21).

E-4526 grants Seaboard & Western Airlines temporary exemption from the provisions of section 401 of the act and part 291 of the economic regulations, insofar as such provisions would otherwise prevent it from conducting a maximum of six flights per month carrying refugees from Europe to the United States; otherwise denies application (August 22).

E-4527 approves certain agreements between Pan American World Airways and others relating to intercompany arrangements (August 22).

E-4528 approves certain agreements between United Air Lines and others relating to intercompany arrangements (August 22).

E-4529 denies request of Resort Airlines for reconsideration in the matter of its application for an exemption which was denied by order serial No. E-4430 (August 22).

E-4530 approves interlocking relationship between Inter City

(Continued on page 126)

Board Adopts Rule on Disclosure Of Data on Accidents by Employees

The Civil Aeronautics Board has amended its procedural regulations by adding a new part 311 regarding disclosure of aircraft accident information by employees of the Board. The new part was made effective September 15, 1950.

In connection with the new part, the Board issued the following explanatory statement:

"At the present time, the procedural regulations of the Board do not contain provisions regarding the disclosure by Board employees of information obtained during the course of an investigation of an accident involving aircraft. The purpose of this part is to make provision therefor and to regulate the conduct of its employees in regard to the disclosure of aircraft accident investigation information.

"The Board is required by section 702 of the Civil Aeronautics Act (49 U. S. C. 582) to investigate such accidents and report the facts, conditions, and circumstances relating to each accident and the probable cause thereof, and to make such recommendations as, in its opinion, will tend to prevent similar accidents in the future.

"To perform this function, the Board has appointed air safety investigators who are assigned to the investigation of aircraft accidents. However, the Board's staff of accident investigators is very small in relation to the great number of accidents which must be investigated. In the fiscal year 1949 alone, more than 7,500 accidents involving aircraft were reported to the Board. Since the Board has less than 30 field employees assigned to accident investigation duties, 'on the spot' investigations of such accidents have necessarily been limited to those kinds of accidents most likely to be productive of information leading to future improvements in air safety, even though valuable information as to aviation safety might have been obtained through such investigation of all accidents. Furthermore, the Board must employ specialists in aircraft design, metallurgy, aerodynamics, powerplants, meteorology, electronics, and other technical phases of aviation. However, the Board is able to employ only one or two specialists in some of these technical fields. It cannot be predicted when a major crash will occur, and all Board investigators must be instantly ready to proceed to the scene of an accident immediately after it occurs. It would, therefore, substantially interfere with the performance of the Board's accident investigation duties if its employees were compelled to testify in all the cases of which they gain personal knowledge in the performance of their official duties with the Board.

"The Board is not unmindful, however, of the possible hardships which confront private litigants, who often have great difficulty in establishing the facts relating to an aircraft accident. In order to preserve the wreckage, it is generally placed under guard and the public kept at a distance. However, air carriers and aircraft manufacturers are frequently invited to participate in the field investigation since their detailed technical and operating knowledge can contribute to the discovery of important evidence bearing upon the accident. Such participation in the public interest does, however, allow them a degree of access to factual information regarding the accident not accorded to injured parties or the dependents of deceased persons who, not having the requisite technical background, are not permitted to take part in the investigation of the accident and, therefore, would not have equal access to such information. It would be an injustice in such cases for the Board to withhold from injured parties the only source of the facts in an accident investigation as to facts which are known only to those participating in an accident investigation. In light of the foregoing, the Board believes it to be in the interest of the public to release to all interested parties all factual information regarding

an aircraft accident in its possession and to allow its employees to testify as to facts known to them when it is convinced that such facts cannot reasonably be established by any other witness or method.

"Section 205 (b) of the Act authorizes the Board to cooperate with State and local authorities in connection with matters arising under the Act, and the Board believes it is in the public interest to cooperate with local authorities in investigations conducted by them in fulfillment of local governmental obligations. Therefore, the Board has decided to permit its employees to testify as to facts in coroners' investigations and grand jury proceedings conducted by a State or local government without regard to the availability of other witnesses.

"The Board has consistently interpreted section 701 (e) thereof as forbidding the giving of opinion testimony by Board air safety investigators in civil suits between private litigants. The opinions of these experts, upon which the Board relies heavily in making its findings as to probable cause and recommendations in accident reports, are so inextricably entwined with the report that the basic purpose of section 701 (e) would be defeated were such opinion testimony permitted. Furthermore, apart from the provisions of 701 (e), the use of Board investigators as experts to give opinion testimony in civil suits between private parties would impose a serious burden on the Board's investigative staff, and would seriously interfere with the functioning of the Board's investigative processes. Consequently, the Board has prohibited its investigators from serving as expert witnesses or giving opinion testimony with regard to accidents investigated by them."

Survey Eliminates Discount On Aeronautical Chart Sales

On November 1, 1950, the Coast and Geodetic Survey, Department of Commerce, began selling aeronautical charts to the public at list prices regardless of quantities purchased. The Survey said the discount of 33 1/3 percent formerly given on quantity purchases of charts on orders amounting to \$10 or more was discontinued in the interest of improved distribution by eliminating the unauthorized sale of charts.

"The elimination of the discount should encourage the purchase of charts only in quantities actually needed," the Survey said. "By promoting the purchase of charts through established sales channels the dangerous practice of selling obsolete charts should be greatly reduced. Unauthorized distribution of aeronautical charts often results in the use of obsolete editions containing information hazardous to air navigation."

RTCA Report Available

The executive committee of the Radio Technical Commission for Aeronautics has accepted the report of its special committee 57, entitled "Priority Plan for the Assignment of ILS Localizer/Glide Slope Frequencies (Transition Period)." The report, dated October 10, 1950, and identified as paper 164-50/DO-36, is for sale at 15 cents a copy and may be obtained from the RTCA secretariat, 1724 F Street NW., Washington 25, D. C.

Civil Aviation Highlights

	1950	1949
Airports and airfields recorded with CAA, October 1:		
By type: ¹		
Commercial.....	2,378	2,662
Municipal.....	2,213	2,180
CAA Intermediate.....	94	142
Military.....	328	366
All others.....	1,348	1,066
a. Private.....	1,204	978
b. Miscellaneous government.....	144	88
Civil Airports by class: ²		
Total.....	6,063	6,050
Class I and under.....	4,010	4,012
Class II.....	966	983
Class III.....	498	479
Class IV.....	370	368
Class V.....	137	133
Class VI and over.....	82	75
Total U. S. civil aircraft, October 1.....	92,749	92,491
Scheduled air carrier aircraft, October 1.....	1,199	1,097
Civil aircraft production, August total.....	345	272
1- and 2-place models.....	110	84
3-, 4-, and 5-place models.....	22	118
Over 5-place models.....	14	
Certificates approved, August:		
Student pilots.....	5,477	5,537
Private pilots.....	3,225	3,585
Commercial pilots.....	588	733
Airline transport pilots.....	74	95
Mechanics (original certificates).....	636	613
Ground instructors (original certificates).....	72	122
Flight instructor ratings.....	146	238
Instrument ratings.....	127	117
Control tower operators.....	43	133
Traffic control activity, August:		
Aircraft operations, CAA airport towers.....	1,546,939	1,616,041
Fix postings, CAA airway centers.....	945,366	862,763
Instrument approaches, CAA approach control towers.....	19,699	18,623
Airport Operations		
Washington National, September:		
Scheduled air carrier:		
Passengers departing.....	76,176	61,219
Passengers arriving.....	75,351	65,803
Aircraft arrivals and departures.....	10,111	10,040
Other aircraft arrivals and departures.....	2,694	3,590
San Francisco Municipal, August:		
Scheduled air carrier:		
Passengers departing.....	62,325	51,010
Passengers arriving.....	63,422	49,968
Aircraft arrivals and departures.....	7,840	6,991
Other aircraft arrivals and departures.....	3,930	4,206
Oakland Municipal, August:		
Scheduled air carrier:		
Passengers departing.....	(3)	5,437
Passengers arriving.....	(3)	4,714
Aircraft arrivals and departures.....	4,891	4,953
Other aircraft arrivals and departures.....	14,606	18,243
Miami International, August:		
Scheduled air carrier:		
Passengers departing.....	56,329	41,533
Passengers arriving.....	55,033	41,841
Aircraft arrivals and departures.....	8,249	7,853
Other aircraft arrivals and departures.....	8,138	9,468
Los Angeles International, August:		
Scheduled air carrier:		
Passengers departing.....	72,898	60,405
Passengers arriving.....	74,038	61,835
Aircraft arrivals and departures.....	9,186	8,740
Other aircraft arrivals and departures.....	7,217	8,628

¹ Airport type definitions: Commercial—Public use and public services, privately owned and operated. Municipal—Public use and public services, municipally owned and/or operated. CAA Intermediate—Public emergency use, no services, CAA operated. Military—Public restricted, military operated. All others—(a) Public emergency use only, no public services, privately owned for personal use; (b) Public emergency use only, no public services, Government-owned Forest Service, etc.

² The following is a breakdown of paved airports and unpaved airfields by class of facility:

Class of facility	Paved airports	Unpaved airfields	Totals
I and under.....	111	3,899	4,010
II.....	156	810	966
III.....	320	178	498
IV.....	331	39	370
V.....	129	8	137
VI and over.....	79	3	82
Totals.....	1,126	4,937	6,063

³ Not available.

CAM Supplements and Aviation Safety Releases

(Issued between August 15, 1950, and October 15, 1950, and obtainable from the CAA Office of Aviation Information, Department of Commerce, Washington 25, D. C.)

CAM Supplements

CAM No.	Supplement No.	Date	Title
46	3	9/21/50	Flight and Navigational Instruments.
26	2	9/15/50	Content and Scope of Written Examination Required for a Control-Tower Operator Certificate in Proof of Aeronautical Knowledge.
27	2	9/21/50	Content and Scope of Written Examination for Aircraft Dispatcher.
41	7	9/21/50	Crew Complement.
41	8	9/21/50	Flight Time Limitations.
41	9	9/21/50	Definitions—Route Segment.
60	3	9/5/50	Instrument Approach Procedures—ILS Procedures Determination.
60	4	9/11/50	Symbols Used in Ceiling and Visibility Minimums.

Aviation Safety Releases

No.	Subject	Date
335	Registration of Aircraft; Recordation of Conveyances.	8/30/50
336	Parachute Safety Posters.	8/31/50
337	Pitot Static Systems.	9/25/50

CAB Official Actions

(Continued from page 124)

Aviation and Kaman Aircraft Corp. created by the proposed election of E. M. Beale, Jr., to the position of director of Kaman Aircraft Corp. (August 22).

E-4531 approves certain agreements between American Airlines and others relating to intercompany arrangements (August 22).

E-4532 grants motions of Aerovias Sud and American Central for consolidation of their applications for certificates in dockets Nos. 3280 and 4569 with docket No. 2888; grants motion of Skytrain Airways to consolidate its application for an exemption in docket No. 4473 with docket No. 2888; otherwise denies motion of Skytrain (August 22).

E-4533 grants Braniff Airways, Pan American World Airways, Chicago and Southern Air Lines, National Airlines, and Eastern Air Lines leave to intervene in the matter known as the *Latin American Air Freight* case (August 22).

E-4534 dismisses applications of Bekins Van Lines Co. filed under title IV of the Act (August 22).

E-4535 dismisses application of W. Dev. Lomax for a certificate (August 22).

E-4536 dismisses the statement and certification by the Postmaster General of the needs of the postal service for air transportation in the Ketchikan area of Alaska (August 22).

E-4537 dismisses application of Los Angeles Air Service for an exemption under section 416 of the Act (August 22).

E-4538 grants exemption, with stated provisions, to Northwest Airlines from the provisions of section 401 (a) of the Act and of its certificate for route No. 3; grants Capital, American, and United leave to intervene; otherwise denies (August 10).

E-4539 extends from August 30, 1950, to November 27, 1950, the period of suspension and investigation instituted by order serial No. E-4256 of certain fares, rules, and regulations in connection therewith from Fairbanks, Alaska, to Seattle, Wash., proposed by Pan American World Airways (August 23).

E-4540 dismisses the proceeding of investigation and suspension instituted by order serial No. E-4291 in the matter of the discount for military personnel proposed by Royal Air Service (August 23).

E-4541 approves, subject to stated provisions, the interlocking relationship between A. E. Ullmann and Metropolitan Air Commuting (August 23).

E-4542 supplemental order enlarges scope of the proceeding in the matter of the revocation of letter of registration No. 1802 issued to New England Air Express; directs New England Air Express to show cause why, if alleged violations are established, the Board should not revoke its letter of registration (August 23).

E-4543 dismisses complaint and proceeding in the matter of the complaint of Transcontinental & Western Air versus Pennsylvania-Central Airlines Corp. (August 23).

E-4544 approves, with stated provisions, the interlocking relationship between Robinson Airlines Corp. and Link Aviation existing as a result of the holding by Edwin A. Link of described positions and interest (August 23).

E-4545 grants motion filed August 8, 1950, by public counsel for permission to withdraw motion of April 18, 1950, in the matter of mail rates of Colonial Airlines over routes 71, 71-F, 72, and 72-F (August 23).

E-4546 opinion and order approve application of Robert Dennis

Scheduled Air Carrier Operations

[Source: CAB Form 41]

Domestic: August 1950

Operator	Revenue miles	Revenue passengers	Revenue passenger-miles (000)	Passenger seat-miles (000)	Revenue passenger load factor (percent)	Ton-miles flown		
						Express	Freight	United States mail
Trunk Lines								
American Airlines	5,222,247	340,080	170,498	226,714	75.20	659,109	3,464,392	790,449
Braniff Airways	961,841	57,493	19,480	34,046	57.22	88,592	194,436	113,590
Capital Airlines	1,910,875	139,772	41,267	70,524	58.51	207,902	738,133	130,769
Chicago & Southern Air Lines	624,861	27,898	10,188	18,109	56.26	76,768	92,373	52,601
Colonial Airlines	360,886	23,139	5,830	10,618	54.91	7,213	12,738	8,794
Continental Air Lines	506,521	19,824	7,118	14,421	49.36	8,989	45,614	16,418
Delta Air Lines	1,196,004	54,695	23,417	39,445	59.37	101,262	324,823	96,371
Eastern Air Lines	4,098,220	229,282	97,990	161,352	60.73	370,574	61,968	378,816
Inland Air Lines	303,214	9,746	3,925	7,281	53.91	6,760	19,856	12,252
Mid-Continent Airlines	750,899	30,903	9,247	18,844	49.07	24,917	46,476	38,726
National Airlines	825,935	27,983	16,340	33,039	49.46	19,901	258,443	49,575
Northeast Airlines	466,920	49,520	9,401	15,446	60.86	17,383	32,343	10,235
Northwest Airlines	1,814,030	86,712	58,345	86,068	67.79	207,514	562,836	187,620
Trans World Airlines (5/17/50)	4,135,893	150,352	110,997	153,843	72.15	594,880	1,236,571	767,308
United Air Lines	4,794,200	262,682	145,706	185,370	78.60	796,285	2,666,480	1,047,215
Western Air Lines	805,605	51,770	20,096	31,291	64.22	45,097	69,078	83,850
Trunk total	28,778,151	1,561,851	749,845	1,106,411	67.77	3,233,146	9,826,560	3,784,589
Feeder Lines								
All American Airways	308,387	19,596	2,762	6,476	42.65	11,154	0	3,699
Bonanza Air Lines	78,981	1,883	447	1,635	27.34	289	976	527
Central Airlines	160,378	1,138	124	481	25.78	0	0	1,361
Empire Air Lines	109,530	4,998	892	2,300	38.78	1,850	0	2,023
Frontier Airlines (Challenger-Monarch merger eff. 6/1/50)	377,889	7,489	2,040	7,558	26.99	5,592	17,244	6,929
Helicopter Air Service	30,685	0	0	0	0	0	0	2,022
Los Angeles Airways	30,626	0	0	0	0	0	0	3,724
Mid-West Airlines	132,614	669	98	530	18.49	0	0	1,457
Piedmont Aviation	342,682	12,612	2,568	7,196	35.69	9,845	14,522	4,993
Pioneer Air Lines	324,115	12,380	3,292	7,779	42.32	4,440	12,626	7,879
Robinson Airlines	102,603	5,497	863	2,073	41.63	4,045	2,733	2,038
Southern Airways	149,085	3,348	572	3,131	18.27	4,146	0	3,556
Southwest Airways	204,473	12,896	2,435	4,294	56.71	4,906	11,689	4,187
Trans-Texas Airways	253,668	6,300	1,449	5,327	27.20	2,501	5,189	4,449
Turner Airlines	77,115	1,162	185	1,078	17.16	3,053	0	466
West Coast Airlines	148,672	8,780	1,269	2,513	50.50	1,330	2,229	574
Wiggins, E. W., Airways	47,608	491	47	190	24.74	0	0	131
Wisconsin-Central Airlines	184,253	5,201	866	1,554	55.73	5,079	0	3,987
Feeder total	3,034,369	104,440	19,909	54,115	36.79	58,230	67,208	54,002
Territorial Lines								
Caribbean-Atlantic Airlines	47,551	6,723	530	1,246	42.54	0	2,290	836
Hawaiian Airlines	310,644	37,847	4,955	6,900	71.81	9,374	48,337	4,224
Territorial total	358,195	44,570	5,485	8,146	67.33	9,374	50,627	5,060
Grand total	32,170,715	1,710,861	775,239	1,168,672	66.34	3,300,750	9,944,395	3,843,651

Domestic: Passenger-miles Flown

(Total revenue and nonrevenue, in thousands)

	January	February	March	April	May	June	July	August	Total
Trunk	488,983	488,409	574,493	645,184	691,949	789,740	757,007	786,464	5,222,229
Feeder	10,266	10,425	12,551	15,517	17,191	19,322	24,331	21,446	131,049
Territorial	3,547	3,497	3,841	4,351	3,610	4,966	4,736	5,546	34,094
Total	502,796	502,331	590,885	665,052	712,750	814,028	786,074	813,456	5,387,372

Fenno, Eric D. Fenno, and Matt Flensburg for transfer to Robert Dennis Fenno, d. b. a. Bristol Bay Airlines, of the certificate held by Matt Flensburg, d. b. a. Dillingham Air Service, authorizing air transportation within the Territory of Alaska. Approved by the President August 23, 1950 (July 7).

E-4547 dismisses request of Seaboard & Western Airlines for reconsideration of the Board's order serial No. E-4191 (August 24).

E-4548 grants Eastern Air Lines permission to use Lackland Air Force Base, San Antonio, Tex., on August 25, 1950, for the purpose of originating Eastern's flight No. 556 at this airport (August 24).

E-4549 denies request of Braniff Airways for stay, pending action upon its petition for reconsideration, of the effective date of the amended certificate issued to Trans-Texas pursuant to the Board's opinion and order serial No. E-4456 (August 23).

E-4550 extends from August 30, 1950, to November 27, 1950, the period of suspension and investigation, instituted by order serial No. E-4255, of cancellation of certain sleeper charges proposed by Northwest Airlines between Seattle, Wash., and Honolulu, T. H. (August 24).

E-4551 opinion and order grant Aerovias Guest a temporary foreign air carrier permit to engage in foreign air transportation with respect to persons, property, and mail between the terminal point Mexico City, the intermediate points Miami, Fla.; the Azores; Lisbon, Portugal; and the terminal point Madrid, Spain, subject to stated conditions. Approved by the President August 24, 1950 (August 10).

E-4552 denies application of Air Transport Associates for an exemption from the requirements of section 401 of the Act and part 291 of the Board's economic regulations (August 24).

E-4553 vacates and rescinds order serial No. E-4301 so as to permit Parks Air Lines to serve certain points on the St. Louis-Chicago segment of route No. 91 through the use of specified airports (August 24).

E-4554 grants American Airlines temporary exemption from the provisions of section 401 (a) of the Act insofar as they would otherwise prevent it from engaging in air transportation of persons, property, and mail to and from White Plains, N. Y., on route No. 7, through use of Westchester County Airport; reaffirms finding and notification issued May 19, 1949 (E-2839) that American shall not serve New York City on routes Nos. 4, 7, and 25 through its use (August 24).

E-4555 authorizes Southern Airways to change its service pattern on its route No. 98 so as to omit a stop at Tuscaloosa, Ala., with stated provisions, until such time as Van De Graff Airport is adequate for use during hours of darkness (August 24).

E-4556 approves, with stated conditions, agreements between Pan American World Airways and other carriers relating to rates, embodied in resolutions of the fifth meeting of IATA traffic conference No. 1 (August 24).

E-4557 approves, defers, and approves with stated conditions, agreements between Pan American World Airways and other air carriers relating to rates, embodied in resolutions of the seventh meeting of IATA traffic conference No. 2 (August 24).

E-4558 approves, defers, and approves with stated conditions,

(Continued on page 128)

Scheduled Air Carrier Operations

(Continued on page 128)

International and Overseas: January-August 1950, 1949

Operator	Revenue miles January-August		Revenue passengers January-August		Revenue passenger- miles (000) January-August		Passenger-seat- miles (000) January-August		Revenue passenger load factor (percent) January-August	
	1950	1949	1950	1949	1950	1949	1950	1949	1950	1949
American Airlines	1,529,249	1,482,543	59,712	55,145	45,847	44,658	75,144	69,431	61.01	64.32
American Overseas Airlines	4,266,943	5,210,866	92,042	57,430	140,792	119,801	214,458	197,115	65.65	60.78
Braniff Airways	1,659,323	1,017,762	12,583	8,415	26,122	17,528	71,074	46,773	36.75	37.47
Chicago & Southern Air Lines	1,320,349	1,089,486	15,801	16,325	18,958	18,309	53,086	52,728	35.71	34.72
Colonial Airlines	382,048	482,399	14,061	9,570	11,393	7,537	18,574	21,202	61.34	35.55
Eastern Air Lines	498,259	499,200	11,574	9,951	12,036	10,776	24,663	25,089	48.80	42.95
National Airlines	519,541	434,382	57,141	40,092	15,369	11,444	28,972	21,291	53.05	53.75
Northwest Airlines	4,153,712	3,882,078	34,593	25,494	66,043	50,739	116,691	93,096	56.60	54.50
Pan American World Airways:										
Atlantic Division	7,989,601	10,274,505	102,548	87,692	220,090	209,745	310,659	334,838	70.85	62.64
Latin American Division	18,304,158	19,615,428	486,675	498,353	400,215	407,021	660,674	717,273	60.58	56.75
Alaska Operations	1,597,895	1,671,980	27,322	24,834	25,975	24,603	49,010	48,818	53.00	50.40
Pacific Operations	6,359,545	9,938,737	51,602	58,426	152,027	168,146	274,703	258,510	55.34	65.04
Pan American-Grace Airways	3,796,364	3,854,435	63,865	61,648	67,520	70,635	143,793	130,592	46.96	54.09
Trans World Airlines (5/17/50)	9,093,003	9,136,879	91,827	67,661	221,837	191,657	332,991	305,914	62.84	62.65
United Air Lines	1,281,801	1,587,385	19,091	19,710	45,818	46,868	67,031	67,620	68.35	69.31
Uraba, Medellin & Central Airways	67,760	68,740	1,759	2,016	578	669	1,169	1,099	49.44	60.87
Total	62,819,551	70,246,805	1,132,196	1,042,672	1,470,620	1,400,136	2,462,692	2,391,389	59.72	58.55
Index (1949=100)	89.43	100.00	108.59	100.00	105.03	100.00	102.98	100.00	102.00	100.00

Operator	Ton-miles flown							
	Express January-August		Freight January-August		United States mail January-August		Parcel post January-August	
	1950	1949	1950	1949	1950	1949	1950	1949
American Airlines	8,181	0	860,511	804,710	78,712	86,734	0	0
American Overseas Airlines	1,860,257	2,576,183	0	0	967,639	795,544	260,047	230,283
Braniff Airways	0	0	593,552	138,466	31,689	12,261	0	0
Chicago & Southern Air Lines	0	0	424,217	192,235	17,917	7,855	1,450	633
Colonial Airlines	0	0	40,493	44,714	2,519	5,558	681	906
Eastern Air Lines	0	0	238,923	304,626	46,555	37,104	3,583	5,490
National Airlines	115,730	185,932	34,020	0	8,556	8,759	0	0
Northwest Airlines	91,134	69,531	3,628,290	2,846,697	1,350,547	1,260,239	0	0
Pan American World Airways:								
Atlantic Division	5,053,289	5,656,983	0	0	1,652,875	1,564,660	410,683	246,386
Latin American Division	13,874,565	11,935,342	0	0	1,806,235	1,762,228	0	0
Alaska Operations	2,658,441	2,637,624	0	0	252,696	279,854	0	0
Pacific Operations	3,516,927	3,847,381	0	0	3,834,742	3,791,847	0	0
Pan American-Grace Airways	1,088,938	1,240,514	0	0	222,251	215,402	18,497	16,134
Trans World Airlines (5/17/50)	0	4,152,799	3,625,866	0	1,700,796	1,647,210	289,985	308,596
United Air Lines	0	170,104	220,769	0	386,184	479,648	0	0
Uraba, Medellin & Central Airways	20,913	26,138	0	0	0	0	0	0
Total	28,288,375	32,518,531	9,666,641	4,331,448	12,359,913	11,954,903	984,926	808,428
Index (1949=100)	86.99	100.00	223.17	100.00	103.39	100.00	121.83	100.00

Increased Airline Regularity Forecast by Nyrop

(Continued from page 121)

dustry," Mr. Nyrop continued. "For instance, we today must anticipate the need for a solution of the problem of high speeds and critical fuel consumption which will be presented in the handling of air traffic when jet transports make their inevitable entry into the field of air transportation.

"However, we have laid the foundation towards finding the solution in the system now being implemented.

"There are many other accomplishments for which the airlines, both scheduled and nonscheduled, can take credit," the Administrator continued. "As an illustration—the outstanding service performed on behalf of our fighting men in Korea. There can be no doubt that the manner in which the airlines provided help in rushing supplies to our battle front in Korea during the dark and critical days at the beginning of the conflict was decisive in aiding to turn the tide. General Kuter, commander of the Military Air Transport Service, has revealed that 66 transport planes operated by 17 airlines moved as much tonnage across the Pacific as 184 of the same type of plane under military operation. This in itself is a real commendation for our airlines. The CAA contributed

mainly in providing the usual high quality of air traffic control and communications to which our airlines have become accustomed, so that the pilots found, in the North Pacific and in the Central Pacific, the same helpful aids they are accustomed to here at home.

"The speed with which this airlift—probably the longest one on record—settled down to routine and efficient operation brought still more commendation from the military authorities.

"It is not necessary for me to go into the many aspects of safety in air travel on which the companies and Government work together. The airlines and the Government can point with pride to the safety figures that have come down steadily, so that last year we achieved an all-time record of one passenger fatality per 100,000,000 passenger miles in domestic and international scheduled operation. We take credit but we take warning also from this figure. There must never be the least slackening in strict attention to safety."

Lower Fares Urged.—In a discussion of what the Administrator referred to as "our shortcomings," he noted failure to bring airline fares down to a level where air travel will appeal to a wide segment of the

population. "CAA statisticians recently revealed that two-thirds of those using scheduled airline service were on business trips and only one-third were flying for pleasure," he said. "In contrast, the irregular carriers found that 72 percent of their passengers were using their craft for vacation trips.

"Coach service is an effort to increase public acceptance of air travel. But coach service still has its shortcomings. An airplane operating economically and better suited to the purpose is an admitted need.

"But even of more importance as to volume of business, is the failure of the airlines to capitalize on the short haul trip," he added. Back in 1943, he said, CAA researchers showed that service to intermediate points between big cities would greatly increase passenger volume.

Mr. Nyrop also urged that the CAA, the airlines, and aircraft manufacturers give serious consideration to the solution of the problem of noise created by air transport planes.

Airport Turfing Information Given

Airport Turfing, intended as a guide for airport owners, operators, builders, and others interested in the developing of turf for airports, is on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 25 cents. The various problems involved in developing and maintaining a good turf are discussed.

Gain During August Noted In Shipments of Aircraft

Shipments of complete aircraft, as measured by airframe weight, amounted to 4,002,300 pounds in August 1950, according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census, Department of Commerce. This total was 38 percent above the previous month and 21 percent higher than output in August 1949.

August shipments of civil aircraft amounted to 345 planes, valued at \$7,884,000, compared with 272 planes and \$9,877,000 for the same month of last year. Comparative civil aircraft shipment figures for July and August 1950 follow:

Civil Aircraft Shipments

	1950	
	August	July
Number (total)	345	320
Number by type:		
Personal	331	311
Transport	14	9
Number by place:		
1- and 2-place	110	76
3- to 5-place	221	235
Over 5-place	14	9
Airframe weight (thousand pounds)	512.1	456.1
Personal	253.3	250.7
Transport	258.8	205.4
Value (thousand dollars)	\$12,299	\$10,065
Complete aircraft	7,881	6,580
Parts	2,232	1,776
Other products	2,183	1,709

CAB Official Actions

(Continued from page 126)

agreements between Northwest Airlines and other air carriers relating to rates, embodied in resolutions of the sixth meeting of IATA traffic conference No. 3 (August 24).

E-4559 approves, defers, and approves with stated conditions, agreements between Pan American World Airways and other air carriers relating to rates, embodied in resolutions or parts of resolutions of the joint meeting of IATA traffic conferences Nos. 1 to 12, inclusive (August 24).

E-4560 approves supplementary agreement to resolutions 140/050a and 140/021a of the fourth meeting of IATA traffic conference 1 between Pan American Grace Airways and other air carriers, relating to rates (August 24).

E-4561 orders Pan American World Airways to show cause why the Board should not make final the findings and conclusions set forth in an attached, amended statement, and upon the basis thereof to fix, determine, and publish mail rates to be paid the carrier for the period January 1, 1946, through December 31, 1948, in its trans-Atlantic operations; cancels order serial No. E-2728 (August 25).

E-4562 permits parties to intervene in the matter of the west coast passenger fare structure (August 25).

E-4563 authorizes Western Air Lines to suspend service temporarily at Jackson, Wyo. (August 25).

E-4564 amends certificate of Trans-World Airlines for route No. 2; amends certificate of American Airlines for route No. 4; otherwise denies petitions for reconsideration (August 25).

E-4565 orders suspension to November 29, 1950, and institutes an investigation of certain fares, rules, and regulations proposed by Continental Air Lines between Bartlesville, Okla., and Wichita, Kans. (August 28).

E-4566 denies in all respects motions in the matter of interlocking relationships between certain partners of Lehman Brothers and others (August 29).

E-4567 grants Pan American Grace Airways exemption for 1 year from provisions of section 401 (a) of the Act and its amended certificate for route FAM-9, so as to permit nonstop flights with 4-engine aircraft between Lima, Peru, and La Paz, Bolivia (August 29).

E-4568 grants Robinson Airlines Corp. permission to inaugurate service at Utica-Rome, N. Y., on route No. 94 on August 30, 1950, through use of Oneida County Airport (August 29).

E-4569 grants Queen City Flying Service temporary exemption, with certain conditions, so as to permit it to engage in interstate air transportation of persons and property to or from an airport within a 100-mile radius of Lunken Airport, Cincinnati, Ohio; otherwise denies application of Queen City (August 29).

E-4570 approves interlocking relationship existing as a result of the holding of certain positions by Robert N. Ducas in Metropolitan Air Commuting, Inc., and Flight Refueling, Inc. (August 29).

E-4571 dismisses application of Reed Pigman for an exemption order so as to permit certain control and interlocking relationships involving American Flyers, Inc., and American Flyers (August 29).

E-4572 dismisses complaint of Western Air Lines concerning the proposed cancellation of certain joint fares and routes of United Air Lines and Western Air Lines (August 29).

E-4573 denies petition of Eastern Air Lines to intervene in the matter of the west coast passenger fare structure (August 29).

E-4574 approves, subject to certain conditions, agreement in-

Scheduled Air Carrier Operations

(Continued on page 129)

Domestic: January-August 1950, 1949

Operator	Revenue miles January-August		Revenue passengers January-August		Revenue passenger- miles (000) January-August		Passenger seat- miles (000) January-August	
	1950	1949	1950	1949	1950	1949	1950	1949
Trunk Lines								
American Airlines	37,495,218	36,718,365	2,175,185	2,136,821	1,094,026	1,000,481	1,616,770	1,523,368
Braniff Airways	7,457,601	7,640,249	412,561	390,805	138,806	130,465	260,464	251,005
Capital Airlines	13,374,657	13,395,607	871,541	791,077	257,827	232,454	486,017	451,407
Chicago & Southern Air Lines	4,890,586	4,996,982	204,586	201,797	73,431	71,034	136,265	132,766
Colonial Airlines	2,237,064	2,668,244	123,941	129,966	31,908	33,960	64,572	55,973
Continental Air Lines	3,813,644	3,826,562	131,777	119,409	46,161	43,247	107,859	105,770
Delta Air Lines	9,581,716	8,639,668	412,370	354,304	185,585	143,400	319,679	250,952
Eastern Air Lines	35,536,662	35,529,696	1,692,681	1,494,996	819,891	692,134	1,323,462	1,194,393
Inland Air Lines	2,078,950	1,782,088	60,138	56,335	23,612	20,688	45,083	35,417
Mid-Continent Airlines	5,675,409	5,602,745	228,008	223,926	67,133	66,434	128,585	117,658
National Airlines	7,655,010	6,563,385	257,658	201,440	162,979	114,758	305,204	250,614
Northeast Airlines	2,736,988	2,632,149	243,940	224,013	66,127	42,603	89,691	84,328
Northwest Airlines	13,780,116	12,209,422	552,440	470,798	348,806	263,122	612,398	450,235
Trans-World Airlines (5/17/50)	29,916,002	33,880,878	989,510	930,153	699,093	627,105	1,076,871	1,045,925
United Air Lines	35,305,666	34,767,056	1,600,764	1,465,351	905,153	854,873	1,341,029	1,233,557
Western Air Lines	5,410,465	4,136,413	276,582	184,325	106,196	69,665	203,300	140,858
Trunk total	216,945,694	211,989,509	10,233,682	9,375,016	5,006,734	4,406,428	8,117,249	7,324,226
Index (1949=100)	100.91	100.00	109.16	100.00	113.62	100.00	110.83	100.00
Feeder Lines								
All American Airways	2,065,434	1,634,459	97,637	41,154	13,786	5,366	43,370	24,585
Bonanza Air Lines	600,314	-	11,810	-	2,878	-	11,927	-
Central Airlines	1,191,889	-	6,310	-	713	-	3,576	-
Empire Air Lines	750,035	703,595	28,519	22,623	5,370	4,821	15,737	14,776
Florida Airways (ceased opr. 3/28/49)	-	193,120	-	3,026	-	409	-	1,542
Frontier Airlines (Challenger-Monarch merger eff. 6/1/50)	2,295,630	2,244,360	39,890	41,446	10,851	10,817	43,780	42,813
Helicopter Air Service	219,593	2,178	0	0	0	0	0	0
Los Angeles Airways	229,634	230,185	0	0	0	0	0	0
Mid-West Airlines	1,007,409	-	4,588	-	671	-	4,027	-
Piedmont Aviation	2,390,979	1,919,247	78,535	53,796	16,104	11,603	50,214	40,305
Pioneer Air Lines	2,486,455	2,550,929	81,593	67,098	22,004	18,349	59,780	61,410
Robinson Airlines	735,345	558,361	34,540	26,249	5,434	3,918	14,383	11,074
Southern Airways	1,153,599	214,819	20,913	2,827	3,532	463	24,189	4,571
Southwest Airways	1,554,644	1,609,637	75,653	77,620	14,007	14,249	32,648	33,803
Trans-Texas Airways	1,975,002	1,837,314	38,390	28,664	8,666	6,898	41,473	38,583
Turner Airlines	324,556	-	6,665	-	1,043	-	6,503	-
West Coast Airlines	843,477	844,220	45,856	47,530	6,540	6,183	17,713	17,729
Wiggins, E. W. Airways	1,477,945	-	1,977	-	177	-	986	-
Wisconsin-Central Airlines	1,347,699	983,264	31,324	20,264	4,989	3,084	11,157	8,335
Feeder total	21,619,639	15,525,718	604,190	432,297	116,765	86,160	381,463	299,526
Index (1949=100)	139.25	100.00	139.76	100.00	135.52	100.00	127.36	100.00
Territorial Lines								
Caribbean-Atlantic Airlines	376,390	409,931	51,361	59,733	4,116	4,380	9,419	10,052
Hawaiian Airlines	1,988,090	1,928,666	226,917	215,169	29,509	29,582	4,031	42,452
Territorial total	2,364,480	2,338,597	278,278	274,902	33,625	33,962	53,450	52,504
Index (1949=100)	101.11	100.00	101.23	100.00	99.01	100.00	101.80	100.00
Grand total	240,929,813	232,853,824	11,116,150	10,082,215	5,157,124	4,526,550	8,552,162	7,676,256
Index (1949=100)	103.47	100.00	110.26	100.00	113.93	100.00	111.41	100.00

volving Pan American World Airways and others relating to amendments to the provisions for the regulation and conduct of traffic conferences of the International Air Transport Association (August 29).

E-4575 approves, until modification of order serial No. E-570 and extension of the Pan American-Panagra through flight agreement, agreements of CAB Nos. 727-A, through A-5, A-7, and A-8, relating to through service at Balboa (August 29).

E-4576 authorizes Northwest Airlines to suspend service at Beloit-Janesville, Wis., until October 12, 1950 (August 29).

E-4577 orders that a hearing be held concerning the application of Northwest Airlines to suspend service temporarily at Aberdeen, S. Dak. (August 29).

E-4578 permits American Overseas Airlines to inaugurate non-stop service between Amsterdam, Holland, and Cologne-Dusseldorf, Germany, on or about September 4, 1950 (August 30).

E-4579 extends until December 5, 1950, the period of suspension of air coach fares, rules, and regulations applicable thereto, between Miami, Fla., and San Juan, P. R., proposed by Eastern Air Lines (August 30).

E-4580 orders an investigation of, and suspends from September 1 to November 29, 1950, lower fares between specific points proposed by Delta Air Lines, Eastern Air Lines, and Southern Airways (August 30).

E-4581 opinion and order revoke letter of registration held by Golden North Airways; Golden North ordered to cease and desist from further violations of the Act and of the economic regulations (August 31).

E-4582 extends for 1 year the exemption granted Northwest Airlines so as to permit free transportation to technical employees of certain companies associated in the development of Boeing 377 aircraft, subject to additional conditions (August 31).

E-4583 grants Turner Airlines a temporary exemption to serve Kokomo and Richmond, Ind., until final disposition of the proceeding with respect to renewal of Turner's certificate for route No. 88 (September 1).

E-4584 grants Delta Air Lines a temporary exemption to serve Kokomo and Richmond, Ind., until October 3, 1950, until Turner Airlines inaugurates service to Kokomo and Richmond, whichever shall first occur (September 1).

E-4585 opinion and order issue amended certificates to American, Continental, and Pioneer in the Pioneer Certificate Renewal case (September 1).

E-4586 grants American Airlines and Transportes Aereos Nacionales leave to intervene in the Latin American Air Freight case (September 5).

E-4587 permits Aerovias Guest, S. A., to inaugurate service on or about September 11, 1950, at Miami, Fla., on its route between Mexico and Spain through the use of Miami International Airport (September 5).

E-4588 grants Bureau of Aeronautics of Pinellas County, St. Petersburg, Fla., leave to intervene in the Southern Service to the West case (September 5).

E-4589 revokes orders serial Nos. E-371 and E-411 which granted an exemption from a condition contained in American Airlines' certificate for route No. F. A. M.-26 (September 5).

E-4590 decision and order revoke letter of registration of Inter-American Airways and order it to cease and desist from further violations of the Act and the Board's economic regulations thereunder (September 6).

E-4591 decision and order cancel a tariff rule by which Braniff Airways, Continental Air Lines, and Pioneer Air Lines propose the carriage of excess baggage in excess of 26 pounds at one-half the present rate (September 6).

E-4592 authorizes Frontier Airlines to change its service pattern on routes Nos. 73 and 93, with stated provisions; denies request of town of Farmington, N. Mex. (September 6).

E-4593 denies motion of Pioneer Air Lines requesting that the Board reconsider, rescind, or set aside its order serial No. E-4440 with respect to air service at Pecos, Tex. (September 6).

E-4594 decision and order deny application of Alaska Airplane Charter Co. to engage in scheduled and nonscheduled air transportation of persons, property, and mail over routes in southeastern Alaska, and in charter service out of Sitka and Juneau. Approved by the President September 6, 1950 (June 22).

E-4595 authorizes change in service pattern of Empire Air Lines on segments 1 and 2 of route No. 78, with stated provisions (September 7).

(Continued on page 131)

Scheduled Air Carrier Operations

(Continued from page 128)

Domestic: January-August 1950, 1949

Operator	Revenue passenger load factor (percent) January-August		Ton-miles flown					
			Express January-August		Freight January-August		United States mail January-August	
	1950	1949	1950	1949	1950	1949	1950	1949
Trunk Lines								
American Airlines.....	67.67	65.68	4,081,035	3,267,107	21,005,003	19,041,894	5,918,544	5,705,840
Braniff Airways.....	53.29	51.98	629,353	498,384	1,185,516	670,273	826,670	690,387
Capital Airlines.....	53.05	51.50	1,427,685	992,946	5,375,910	4,165,181	934,629	654,574
Chicago & Southern Air Lines.....	53.89	53.50	404,653	333,390	565,323	370,012	370,794	340,451
Colonial Airlines.....	49.41	60.67	50,444	38,912	67,018	68,178	59,122	61,781
Continental Air Lines.....	42.80	40.89	66,264	62,932	311,110	235,144	128,026	137,665
Delta Air Lines.....	58.05	57.14	621,548	438,231	1,860,192	1,095,766	751,471	579,029
Eastern Air Lines.....	61.95	57.95	2,570,164	2,173,970	7,257,772	5,307,005	3,129,082	3,168,315
Inland Air Lines.....	52.37	58.41	41,482	42,650	106,805	86,288	78,269	78,614
Mid-Continent Airlines.....	52.33	56.46	155,381	129,730	327,465	216,715	221,505	204,430
National Airlines.....	53.35	45.79	412,950	308,183	1,554,612	694,543	424,497	370,459
Northeast Airlines.....	51.43	50.52	109,315	52,020	180,156	144,154	73,487	57,631
Northwest Airlines.....	56.96	58.44	1,254,699	1,022,171	4,272,793	2,779,269	1,630,793	1,578,642
Trans-World Airlines (5/17/50).....	64.39	59.96	3,628,816	2,961,202	7,990,597	7,374,739	5,514,162	5,869,713
United Air Lines.....	67.50	69.30	5,174,997	3,777,374	14,639,941	14,639,185	7,414,249	6,544,249
Western Air Lines.....	52.24	49.46	328,704	171,358	472,183	282,877	498,965	228,266
Trunk total.....	61.61	60.16	20,956,950	16,270,560	70,141,396	57,191,223	27,974,265	26,270,046
Index (1949=100).....	102.41	100.00	128.80	100.00	122.64	100.00	106.49	100.00
Feeder Lines								
All American Airways.....	31.79	21.83	69,199	30,890	0	0	26,922	27,840
Bonanza Air Lines.....	24.13	-	1,279	-	6,710	-	3,371	-
Central Airlines.....	19.94	-	-	-	0	-	10,444	-
Empire Air Lines.....	34.12	32.63	10,861	9,210	0	0	12,425	13,398
Florida Airways (ceased opr. 3/28/49).....	-	26.52	-	660	-	0	-	1,812
Frontier Airlines (Challenger-Monarch merger eff. 6/1/50).....	24.79	25.27	33,908	35,164	106,819	104,253	40,778	42,238
Helicopter Air Service.....	-	-	0	0	0	0	13,107	166
Los Angeles Airways.....	-	-	0	0	0	0	28,093	28,722
Mid-West Airlines.....	16.66	-	0	0	0	-	11,698	-
Piedmont Aviation.....	32.07	28.79	47,555	22,503	78,003	34,905	32,294	19,992
Pioneer Air Lines.....	36.81	29.88	30,160	18,321	86,516	42,285	62,878	53,368
Robinson Airlines.....	37.78	35.38	23,385	0	20,642	10,368	14,213	11,166
Southern Airlines.....	14.60	10.13	26,197	4,208	0	0	26,046	3,562
Southwest Airways.....	42.90	42.15	30,863	21,689	87,984	60,195	30,658	31,914
Trans-Texas Airways.....	20.90	17.88	19,276	12,455	37,021	9,129	34,544	39,861
Turner Airlines.....	16.04	-	12,728	-	0	-	3,464	-
West Coast Airlines.....	36.92	34.88	8,532	8,297	6,718	0	4,954	6,477
Wiggins, E. W. Airways.....	17.95	-	0	-	0	-	1,125	-
Wisconsin-Central Airlines.....	44.72	37.00	29,662	12,364	0	0	24,002	12,024
Feeder total.....	30.61	28.77	343,605	175,761	430,413	261,135	380,658	292,540
Index (1949=100).....	106.40	100.00	195.50	100.00	164.82	100.00	130.12	100.00
Territorial Lines								
Caribbean-Atlantic Airlines.....	43.70	43.57	0	0	17,891	21,701	6,868	5,205
Hawaiian Airlines.....	67.02	69.68	78,580	82,911	298,376	375,860	36,199	38,186
Territorial total.....	62.91	64.68	78,580	82,911	316,267	397,561	43,067	43,391
Index (1949=100).....	97.26	100.00	94.78	100.00	79.55	100.00	99.25	100.00
Grand total.....	60.30	58.97	21,378,775	16,529,232	70,888,076	57,849,919	28,397,990	26,605,977
Index (1949=100).....	102.26	100.00	129.34	100.00	122.54	100.00	106.74	100.00

International and Overseas: August 1950

Operator	Revenue miles	Revenue passenger-load factor (percent)	Revenue passenger-miles (000)	Passenger-seat-miles (000)	Revenue passenger-load factor (percent)	Ton-miles flown			
						Express	Freight	United States mail	Parcel post
American Airlines.....	200,738	8,802	6,875	10,044	68.45	1,014	116,663	9,901	0
American Overseas Airlines.....	671,260	15,690	21,761	33,638	64.69	247,260	0	151,313	36,442
Braniff Airways.....	266,293	2,270	4,621	11,459	40.33	0	111,749	8,860	0
Chicago & Southern Air Lines.....	143,530	1,918	2,426	5,495	44.15	0	50,336	2,465	174
Colonial Airlines.....	73,076	3,277	2,686	3,800	70.68	0	3,300	369	146
Eastern Air Lines.....	64,480	1,387	1,442	3,180	45.35	0	15,099	7,389	632
National Airlines.....	66,151	8,292	2,236	3,693	60.55	3,264	18,339	1,075	0
Northwest Airlines.....	538,016	5,443	11,289	16,521	68.33	17,260	498,668	183,639	0
Pan American World Airways:									
Atlantic Division.....	1,061,258	16,212	34,234	43,899	77.98	631,773	0	235,336	42,966
Latin American Division.....	2,330,694	68,620	60,261	87,551	68.83	1,753,569	0	220,883	0
Alaska Operations.....	211,486	5,211	4,735	6,914	68.48	368,816	0	35,085	0
Pacific Operations.....	761,694	7,322	23,993	34,597	69.35	555,521	0	483,548	0
Pan American-Grace Airways.....	494,044	8,631	9,117	18,670	48.83	126,315	0	24,436	3,741
Trans World Airlines (5/17/50).....	1,434,885	13,253	36,358	60,998	59.61	0	452,200	205,433	35,066
United Air Lines.....	168,000	3,485	8,364	9,043	92.49	0	31,824	49,369	0
Uruba, Medellin & Central Airways.....	9,184	239	78	155	50.32	3,243	0	0	0
Total.....	8,494,789	170,052	230,476	349,657	65.91	3,708,035	1,298,178	1,619,101	119,167

Helpful Publications

Publications listed below are on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Orders must be accompanied by money order or check made payable to the Superintendent of Documents.

Flight Assistance

Airman's Guide and Flight Information Manual..... \$6 a year
(The Airman's Guide, published every 2 weeks, contains three sections: Directory of Airports, Radio Facility Data, and Notices to Airmen. The Flight Information Manual supplements the Airman's Guide and is issued semiannually.)

Airports

Airport Buildings..... 20 cents
(Problems of airport building design are discussed and several solutions suggested.)
Airport Design..... 30 cents
(Provides basic information on airport construction.)
Airport Drainage..... 30 cents
(Contains information helpful in developing an efficient and economical airport drainage system.)

Airport Landscape Planting..... 15 cents
(Provides practical information on how to improve the appearance of an airport.)

Airport Turfing..... 25 cents
(Describes various problems involved and presents methods used in establishing and maintaining a good turf.)

Seaplane Facilities..... 25 cents
(Answers problems posed by the planning and construction of seaplane bases.)

Small Airports..... 15 cents
(Answers many problems confronting communities or individuals who want to build a small airport.)

Standard Specifications for Construction of Airports..... \$2
(Contains specification items for construction of airports and air parks. Covers clearing and grubbing, grading, drainage, paving, lighting, turfing, and incidental construction.)

Flight Training

Aircraft Powerplant Handbook..... \$1.25
(For students, mechanics, pilots, and engineers who have only superficial knowledge of aircraft powerplant fundamentals.)

Facts of Flight..... 50 cents
(A nontechnical manual, with chapters on airplane flight, stalls, spins, airplane structure, airplane engines, flying the plane, airport traffic, seaplanes, and safety in flight.)

Path of Flight..... 40 cents
(Practical information about basic navigation of aircraft, presented in brief form for the use of the private pilot.)

Realm of Flight..... 60 cents
(Presents practical information about the effect of atmospheric conditions upon flight.)

Commercial Pilot Examination Kit..... 30 cents
(Contains a summary of subject matter on which the examination is based, reference material for study, and four groups of examination questions similar to those used in the official certifying examination.)

Flight Instructor Oral Examination Guide-book..... 5 cents
(Prepared as an aid to the prospective applicant for a flight instructor rating.)

Miscellaneous

ANC Procedures for the Control of Air Traffic..... 40 cents
(Officially approved manual of air traffic control procedures adopted for use by civil and military air traffic control personnel. These procedures are required to be followed by all civil controllers holding certificates under Part 26 of the CAR.)

Industrial Flying..... 10 cents
(A brief description of various uses for the airplane in industrial flying.)

Student Pilot Guide..... 10 cents
(Presents information of particular importance to student pilots during the early stages of flight training.)

Terrain Flying..... 25 cents
(Describes the special problems and hazards encountered in flying over various kinds of terrain and proper precautions.)

The Air Fair..... 20 cents
(Gives detailed helps in planning and operating an air fair.)

Regulations of The Administrator

(Through October 31, 1950)

Note: Regulations of the Administrator marked with an asterisk (*) on the list given below may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., at the prices indicated. Remit check or money order, made payable to the Superintendent of Documents, directly to the Government Printing Office. Copies of amendments may be obtained free of charge from the Office of Aviation Information, CAA, Washington 25, D. C., or may be found in the Federal Register for the dates indicated in parentheses. Copies of the Federal Register are obtainable from the Superintendent of Documents.

Part 405—Procedure of the Civil Aeronautics Administration. (Federal Register, part II, section 2, July 16, 1949. 20¢.)

*Part 406—Rules of Practice Governing Proceedings to Alter, Amend, or Modify Certificates. (5¢.)

*Part 407—Seizure of Aircraft. (5¢.)

*Part 450—Inter-American Aviation Training Grants. (5¢.)

*Part 501—Aircraft Registration Certificates. (5¢.)

*Part 502—Dealers' Aircraft Registration Certificates. (5¢.)

*Part 503—Recordation of Aircraft Ownership. (5¢.)

*Part 504—Recordation of Encumbrances Against Specifically Identified Aircraft Engines. (5¢.)

*Part 505—Recordation of Encumbrances Against Aircraft Engines, Propellers, Appliances, or Spare Parts. (5¢.)

*Part 550—Federal Aid to Public Agencies for Development of Public Airports. (10¢.)

(Amendments 1-12 available from CAA.)

*Part 555—Acquisition of Government-owned Lands for Public Airport Purposes. (5¢.)

*Part 560—Reimbursement for Damage to Public Airports by Federal Agencies. (10¢.)

(Amendment 1 available from CAA.)

*Part 570—Rules of Washington National Airport. (5¢.)

(Amendment 1 available from CAA.)

*Part 575—Federal Civil Airports on Canton and Wake Islands. (5¢.)

*Part 600—Designation of Civil Airways (including amendments 1 through 18). (15¢.)

(Amendments 19-34 available from CAA.)

*Part 601—Regulation of Control Areas, Control Zones and Reporting Points (including amendments 1 through 22). (15¢.)

(Amendments 23-37 available from CAA.)

*Part 612—Aeronautical Fixed Communications. (5¢.)

*Part 625—Notice of Construction or Alteration. (5¢.)

*Part 635—Reproduction and Dissemination of Current Examination Materials. (Available without charge from CAA.)

Stall Recovery Technique Demonstrated to Pilots

(Continued from page 121)

major portion of accidents resulting in injuries in light planes, CAA officials point out, and a large portion of stall accidents ended fatally. Using stall warning devices and special instruments in the standard light plane now on tour, the CAA has conducted several research studies, the latest of which indicates that a simple instrument will warn the pilot in time to avoid a stall, and can also be used as a flight instrument to avoid getting into dangerous maneuvers. The use of the plane by CAA airman agents in all parts of the country gives practical and dramatic proof of the findings of the researchers.

Reports on stall accidents from the fifth region indicate that stall accidents for the first 6 months of 1950 were approximately half the number for the first 6 months of 1949, and further analysis is being made to determine what effect the new training has had in this reduction. Similar records will be studied in other regions as the plane continues its itinerary, now scheduled to end in June of 1951.

Commercial, private, and student pilots, CAA airman agents, CAA designated flight examiners, private owners, aviation writers, and State aviation officials have flown the test plane and studied the better method of stall recovery. The special features of the test plane include a helicopter-type air speed indicator, and very sensitive altimeter and angle of attack indicators. These make it possible for any pilot to learn how to be an "altitude miser," and to lose the minimum of altitude in recovering from a stall. This is important because stalls at low altitudes cause the greatest number of accidents.

Air Regulations . . November 1, 1950

TITLE	No.	Price	Date	Number of Amendments	Applicable Special Regulations
Aircraft					
Airworthiness Certificates	1	\$0.05	5/10/49		
Type and Production Certificates	2	.05	8/1/49	1	SR-342
Airplane Airworthiness; Normal Utility, Acrobatic, and Restricted Purpose Categories	13	.15	11/1/49	3	SR-342, SR-343, 344
Airplane Airworthiness	4a				
Airplane Airworthiness; Transport Categories	14b	.25	7/20/50		SR-342
Rotorcraft Airworthiness	6	.05	3/1/50	1	SR-342
Aircraft Airworthiness; Restricted Category	8	.05	10/11/50		
Aircraft Airworthiness; Limited Category	9	.05	11/1/49		
Aircraft Propeller Airworthiness	13	.05	8/1/49	1	SR-342
Aircraft Propeller Airworthiness	14	.05	11/1/49	1	SR-342
Aircraft Equipment Airworthiness	15	.05	11/1/49	2	SR-342
Aircraft Radio Equipment Airworthiness	16	.05	2/13/41		
Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments	18	.05	8/15/49		
Airmen					
Pilot Certificates	20	.05	8/1/49	5	
Airline Transport Pilot Rating	21	.05	8/15/49	2	
Lighter-than-air Pilot Certificates	22	.05	11/1/49	2	
Mechanic Certificates	25	.05	9/5/50	1	SR-348
Parachute Technician Certificates	26	.05	11/1/49	1	
Air-Traffic Control-tower Operator Certificates	27	.05	11/1/49	1	
Aircraft Dispatcher Certificates	29	.05	10/1/49	1	
Physical Standards for Airmen	33	.05	2/15/50	2	
Flight Radio Operator Certificates	34	.05	11/1/49	1	SR-352
Flight Navigator Certificates	35	.05	11/1/49	1	
Flight Engineer Certificates					
Operation Rules					
Air Carrier Operating Certification	40	.05	9/1/49		SR-346, 349, 351, 353
Certification and Operation Rules for Scheduled Air-Carrier Operations Outside the Continental Limits of the United States	41	.05	11/15/49	2	SR-349
Irregular Air Carrier and Off-Route Rules	42	.10	6/1/49	5	SR-337, 349, 350
General Operation Rules	43	.05	8/1/49	4	
Foreign Air Carrier Regulations	44	.05	9/1/49		
Commercial Operator Certification and Operation Rules	45	.05	11/15/49	1	SR-337, 343, 349
Operation of Moored Balloons	48	.05	9/1/49		
Transportation of Explosives and Other Dangerous Articles	49	.10	7/20/49		
Air Agencies					
Airman Agency Certificates	50	.05	10/1/49	2	SR-351, 355
Ground Instructor Rating	51	.05	10/10/49		
Repair Station Rating	52	.05	10/15/49		
Mechanic School Rating	53	.05	10/15/49		
Parachute Loft Certificates and Ratings	54	.05	10/15/49	1	
Air Navigation					
Air Traffic Rules	60	.10	8/1/49		
Scheduled Air Carrier Rules	61	.10	9/1/49	2	SR-346, 349, 350
Notice and Reports of Aircraft Accidents and Missing Aircraft	62	.05	5/1/49		

1 Certain aircraft may comply with the provisions of this Part or Part 4a.

NOTE: Civil Air Regulations are on sale at the prices indicated by the Superintendent of Documents, Government Printing Office, Washington, 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Amendments and special regulations may be obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C.

CAA Manuals and Supplements . . . Nov. 1, 1950

TITLE	No.	Price	Date	No. of Supplements	Amending Release
Production Certificates	02	\$0.10	8/1/46		
Airplane Airworthiness; Normal, Utility, Acrobatic, and Restricted Purpose Categories	3	Free		6	
Airplane Airworthiness	04	.75	7/1/44		Nos. 193, 202
Airplane Airworthiness	4a	Free		1	
Airplane Airworthiness; Transport Categories	4b	Free		3	
Aircraft Propeller Airworthiness	14	.15	5/1/46		(Being revised.)
Aircraft Equipment Airworthiness	15				
Aircraft Radio Equipment Airworthiness	16	Free	2/13/41		Nos. 62, 272
Maintenance, Repair, and Alteration of Certificated Aircraft, Engines, Propellers, and Instruments	18	1.25	8/1/49		
Pilot Certificates	20	Free	6/16/50	1	
Air-Traffic Control-tower Operator Certificates	26	Free		2	
Aircraft Dispatcher Certificates	27	Free		2	
Flight Radio Operator Certificates	33	Free	6/16/50	1	
Flight Navigator Certificates	34	Free		1	
Flight Engineer Certificates	35	Free		1	
Air Carrier Operating Certification	40	Free		1	
Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States	41	Free		9	
Irregular Air Carrier Certification and Operation Rules	42	1.00	9/1/49	2	
General Operation Rules	43	Free		4	No. 254
Airman Agency Certificates	50	Free		1	
Ground Instructor Rating	51	Free		1	
Repair Station Rating	52	Free		1	
Mechanic School Rating	53	Free	5/1/40		
Parachute Loft Certificates and Ratings	54	.15	7/1/48		
Instrument Approach Procedure	60	Free		4	
Scheduled Air Carrier Rules	61	Free		5	

NOTE: Manuals for which a price is listed may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Items marked "free" may be obtained from the CAA Office of Aviation Information, Department of Commerce, Washington 25, D. C.

Accident Reports . . . Civil Aeronautics Board

Clearance Not Obtained.—Execution of a straight-in approach by a pilot who did not obtain proper clearance to land and who did not exercise necessary vigilance was given by the Board as the probable cause of an accident at Washington National Airport, Washington, D. C., November 1, 1949, in which 55 persons were killed when a plane piloted by Erick Rios Bridoux collided with Eastern Air Lines' flight 537.

The airliner, carrying 51 passengers and a crew of 4, all of whom were killed, was flying from Boston to Washington via intermediate points. Rios, a Bolivian pilot who was seriously injured in the accident, took off from Washington National Airport 9 minutes before the accident to test-fly a plane for acceptance by the Bolivian Government, the Board said.

Approximately 2 minutes before the accident, as Eastern's flight was on its downwind leg west of the field, it was cleared to land number one on runway 3. The Eastern aircraft made a continuous turn from its downwind leg west of the field to a final approach on runway 3. During this turn, Rios, who had reported engine trouble and had requested landing instructions, was on a high, straight-in approach for a landing on the same runway on which Eastern's flight had been cleared to land.

The Board said Rios attempted to land without obtaining the required clearance from the tower, and without maintaining a proper lookout for other aircraft.

The two planes collided at a point in line with and 1/2 mile from the approach end of runway 3 at an altitude of 300 feet. Both aircraft were destroyed.

The Board said that since Rios was making a long, high final approach, he should have maneuvered his plane so that he could make sure that there were no aircraft in front of him.

Visibility was 15 miles and the ceiling 6,500 feet.

Aircraft Struck Hangar.—Faulty execution of an engine-out approach was given by the Board as the probable cause of the accident at Dallas November 28, 1949, when American Airlines' Flight 157 crashed and burned following an attempted landing at Love Field. Of 46 occupants, 28 received fatal injuries.

The flight originated at La Guardia Field for Mexico City, with stops scheduled at Washington, D. C., and Dallas. As the flight approached Nashville, No. 1 engine started backfiring at intervals of about 20 seconds. Various corrective measures, including the application of alcohol and carburetor heat, and the richening of fuel mixture, were applied but were not successful and the backfiring continued. The engine then was feathered. The Board said that after No. 1 engine was feathered, no attempt was made to transfer fuel from No. 1 main tank, resulting in about 1,400 pounds more weight on the left side of the aircraft than on the right side upon arrival at Dallas.

When nearing Dallas the captain and the flight engineer conferred regarding the returning of No. 1 engine to service and decided against it. When 15 miles northeast of Dallas, the flight was given permission to enter the traffic pattern at Love Field. At a distance of about 1 1/2 miles from the approach end of runway 36, the landing gear was extended. Shortly thereafter the flaps were fully extended.

The turn to final placed the aircraft to the left of the runway. Accordingly, an "S" turn was made to correct the misalignment. During this "S" turn, the aircraft skidded to the left, the air speed dropped abruptly and the aircraft settled rapidly. At this point the captain increased power to engines Nos. 2, 3, and 4 in an attempt to maintain control. The aircraft continued in a generally northwest direction, across the airport on a heading about 40° to the left of runway 36, in a tail-low attitude. Its air speed

continued to fall, its attitude became increasingly nose-high, and a stall developed just before the aircraft struck a hangar and other buildings on the northwest side of the airport. Fire followed at once.

The Board, in its report on the investigation, said that on final approach and when the aircraft was approximately at the proper altitude to start flaring out, the flight engineer saw a warning light flicker and the fuel-flow meter of No. 4 engine reading zero. He immediately notified the pilots that No. 4 engine was cutting out, and the captain told him to put the booster pump to it. The flight engineer did so. Full throttle was then quickly applied to engines Nos. 2, 3, and 4. The captain stated that No. 4 engine came in with a "terrific" surge of power (overspeeding), the left wing dropped, and the aircraft started to turn left.

He then retarded throttles Nos. 3 and 4 in an attempt to raise the left wing with No. 2 engine. When the wing was partially up he opened throttles Nos. 3 and 4 and called for gear and flaps up. The Board said the first officer raised the gear but did not raise the flaps. He then observed that No. 4 tachometer indicated only 1,200 r. p. m., noted that the fuel pressure to that engine was zero, and immediately feathered No. 4 propeller.

In an analysis of the investigation, the Board said: "The decision to land with No. 1 engine inoperative placed certain added responsibilities upon the crew. First, it is vitally necessary to plan an engine-out (three engines) approach with extreme care and thought concerning altitude, air speed, rate of descent, and distance from approach end of the runway, all of which should be determined at a greater distance from the airport than for a normal, 4-engine landing. In addition, it is important that the aircraft be in close alignment with the runway well before beginning descent into final approach, making any further turning unnecessary.

"The turn into final approach was made about 2 miles from the end of the runway. Since the aircraft was not lined up with the runway a flat 'S' turn was attempted to correct this error. During this 'S' turn, the aircraft skidded, resulting in a loss of air speed which was augmented by the fully extended flaps. It is vitally important to use proper flap settings to complete an engine-out approach."

In a summary of what it said "seems to be the most plausible reconstruction of events immediately preceding the accident," the Board continued: "The turn into final approach was misjudged, requiring first an extension of the right-hand turn, and then a left-hand turn, to align with the runway. Such turns were made while the aircraft, according to ground witnesses, appeared to be kept quite level laterally. To change direction from a right turn to a left turn, with the aircraft being kept approximately level would necessitate a large amount of left rudder control to start the left turn, together with considerable right aileron control. Such control caused the aircraft to skid to the left and then to the right. The relatively small amount of fuel in No. 4 main tank, due to improper fuel management, would move centrifugally to the right during the right skid, or away from and uncovering the outlet of the tank which is at the inboard, or left, side of the tank. No. 4 engine did not respond because it had no fuel at the moment. When it did respond, almost immediately, it surged (oversped) and the resulting strong unbalance of thrust caused the aircraft to yaw to the left and the left wing to drop—the dropping tendency being aggravated by the approximate 1,400 pounds of fuel differential in the left tanks.

"The aircraft was then in a position from which recovery was impossible. The almost immediate feathering of No. 4 engine by the first officer, because he believed it inoperative, had no bearing on the accident."

Slight Decline Noted In Number of Airports

The October 1, 1950, tabulation of airports and airfields recorded with the Civil Aeronautics Administration shows a combined total of 6,391. This represented a slight decline from the October 1, 1949, count.

Texas leads with 625 airports and airfields; California is second with 531. The next three States in order are New York 253, Michigan 248, and Ohio 247. The following table shows the complete State-by-State distribution of airports and airfields by type:

United States Airports and Airfields as of October 1, 1950

(Data covers existing airports recorded with CAA)

State	Total	Municipal	Commercial	CAA intermediate	Military	Private	Miscellaneous government
Ala.	90	34	27	0	16	9	4
Ark.	177	48	31	2	22	47	27
Calif.	531	33	35	0	0	16	0
Colo.	104	160	170	7	41	142	11
Conn.	32	10	21	0	0	1	0
Del.	18	2	11	0	1	4	0
D. C.	3	0	0	0	2	0	1
Fla.	188	93	42	1	16	6	0
Ga.	128	54	19	3	11	41	0
Idaho	134	69	14	2	1	21	27
Ill.	173	34	114	2	3	19	0
Ind.	155	33	109	1	4	8	0
Iowa	181	56	58	2	2	63	0
Kans.	190	99	50	1	6	33	1
Ky.	64	15	30	1	2	16	0
La.	74	30	14	2	4	23	1
Maine	63	25	27	0	2	9	0
Md.	54	7	30	0	7	10	0
Mass.	75	23	46	0	4	2	0
Mich.	248	117	96	0	5	28	2
Minn.	121	79	39	0	1	0	2
Miss.	84	35	23	1	6	19	0
Mo.	113	50	47	1	1	14	0
Mont.	114	71	15	8	1	6	13
Nebr.	139	68	42	1	1	26	1
Nev.	64	19	18	6	3	3	15
N. H.	35	12	16	0	1	6	0
N. J.	91	14	67	0	0	5	0
N. Mex.	99	33	20	8	7	28	3
N. Y.	253	46	122	2	6	77	0
N. C.	144	38	77	0	11	17	1
N. Dak.	131	61	36	6	0	27	1
Ohio	247	37	175	5	4	26	0
Okl.	148	82	38	1	5	22	0
Ore.	119	41	54	2	0	28	11
Pa.	220	44	160	2	5	9	0
R. I.	11	2	7	0	2	0	0
S. C.	61	35	18	1	5	1	1
S. Dak.	71	46	16	1	2	6	0
Tenn.	64	23	29	1	2	9	0
Tex.	625	165	142	5	49	259	5
Utah	57	35	8	6	3	4	1
Vt.	23	9	12	0	1	1	0
Wash.	125	23	66	2	14	18	2
W. Va.	180	71	51	3	11	39	5
W. Va.	56	14	26	2	0	14	0
Wis.	174	61	88	2	0	21	2
Wyo.	56	32	12	2	0	7	3
Total	6,391	2,243	2,378	94	328	1,204	144

CAB Official Actions

(Continued from page 128)

E-4596 authorizes Pan American World Airways to suspend service at Prague, Czechoslovakia, until July 4, 1952; otherwise denies application (September 7).

E-4597 authorizes All American Airways change in service pattern on segment 1 of route No. 97, so as to omit landings at Cumberland, Md., during hours of darkness, with stated provision, for a period of 1 year, or until lighting facilities are available at the Municipal Airport; otherwise denies application (September 7).

E-4598 fixes temporary mail rates for Bonanza Air Lines over its entire system (September 8).

E-4599 amends foreign air carrier permit issued to Trans-Canada Air Lines, pursuant to order serial No. E-3978, so as not to include authority to Trans-Canada to engage in turn-around flights between Tampa-St. Petersburg and points south thereof. Approved by the President September 8, 1950 (July 6).

E-4600 orders Alaska Coastal Airlines to show cause why the Board should not fix a certain temporary mail rate over its entire system (September 12).

CAA Activities During Term as Administrator Reviewed by Rentzel

Activities of the Civil Aeronautics Administration during his term as Administrator were summarized by D. W. Rentzel in an address before the National Association of State Aviation Officials in Minneapolis on October 3, the day before he left the CAA to become Chairman of the Civil Aeronautics Board.

"One of my chief concerns when I became Administrator was to help translate the SC-31 plan for an all-weather system of air navigation and traffic control into reality, just as fast as possible, consistent with thorough scientific development of the component parts," he told the group.

"A great deal of work remains to be done," he said, "but I think we have generated a good deal of momentum thus far." As operating experience is gained, he said, it is planned to speed up the progress rate of the 15-year program.

At the same time, he pointed out, flyers have been encouraged to install necessary airborne equipment and to get the maximum utility out of both old and new facilities. "We sponsored development of low-cost omnirange receivers, and have conducted an educational campaign on the use of the omnirange, for this is a system which will benefit both private and commercial flyers," he added.

Safety Record Set.—Mr. Rentzel noted that the 1949 safety record of domestic and international airlines was the best in history, while in non-air-carrier operations, the number of accidents dropped 30 percent below 1948. "Safety has been our constant concern," he said, "and I think the record shows it is possible to get good results by administering the regulations with emphasis on education and cooperation."

The stress on preventive maintenance undoubtedly was one of the contributing factors in the 1949 safety record, Mr. Rentzel said.

"Research was pursued and research findings applied in the interest of greater safety in both air carrier and private flying," Mr. Rentzel continued. "Among the contributions to private flying safety were an indoctrination program on safe stall recovery by minimizing altitude loss; development of shoulder harness and encouragement of its use as a result of studies on head injuries; recommendation of protective measures against toxic effects of chemicals used in agricultural flying, and evaluation of cross-country, 4-place training. In the field of air carrier research, work was done on emergency evacuation devices and procedures, explosive decompression, and establishment of a scientific basis for the airline transport pilot rating examination."

Airport Program Speeded.—Coming to the Federal aid airport program, Mr. Rentzel said that the CAA now has made more than 1,450 grant agreements, totaling 125 million dollars in Federal funds. "The planning of this program has been put on a solid foundation of economic necessity, through a pioneering series of research studies," he continued. "These have established methods for determining relative aviation potential of various communities, and standards for maximum size of airport required by cities of any given size or economic type."

The International Region, established in 1949 to centralize in one office the responsibility for CAA safety activities affecting international operations of major United States airlines, has prosecuted vigorously a program for the installation and operation of essential aids to air navigation abroad, he said.

The use of aircraft for agricultural and industrial purposes has been stressed, Mr. Rentzel pointed out.

Air Coach Services Continued by Board

The Civil Aeronautics Board on September 27 decided to permit the continuation until March 31, 1951, of those coach services operating pursuant to tariffs which were to expire on September 30, but conditioned the continuation beyond November 15 for certain of the services on an increase of fares to be effective after that date to a level of 4.5 cents per passenger mile.

The Board also decided that the services should continue to be restricted, as in the past, to operations at off-peak hours between major traffic centers with high density aircraft and with limited services to passengers.

The conclusion that the fares for coach services should be increased in certain instances was reached after a thorough study of the results of coach operations to date and their impact on the financial results of the air carriers. The large proportions of coach traffic moving over segments where the service is offered, substantial diversion of traffic from standard fare services, and the importance of maximizing revenues on these segments to counterbalance lower revenues on segments of lesser traffic density form the underlying reasons in support of this conclusion. Except where special conditions or circumstances may necessitate exceptions, the Board believes that the 4.5 cent minimum fare level should prevail.

Suspensions of other tariffs filed which do not conform to the standards adopted by the Board will remain in effect.

The limitation of the extensions to March 31, 1951, will permit a review of the services by the Board at that time and is believed necessary in view of current uncertainties both as respects the airline services in particular and the national economy in general.

Board Examiner Appointed As Assistant to Chairman

The Civil Aeronautics Board has announced the appointment of James M. Verner as executive assistant to Delos W. Rentzel, Chairman of the Board.

Mr. Verner, a native of Alabama, received his law degree from the University of North Carolina in 1938. After holding the position of law clerk to the Attorney General of North Carolina, he came to the Civil Aeronautics Board in 1940 as an attorney in the office of the General Counsel.

Mr. Verner served in the United States Navy in Naval Air Transport Service from June 1943 until February 1946. Upon his return to civil life he was appointed assistant general counsel for Chicago & Southern Air Lines, in Memphis, Tenn., and subsequently served as an attorney for the Air Transport Association in Washington, D. C., in 1947 and 1948. In 1949 he returned to the Civil Aeronautics Board as hearing examiner where he served until his appointment as executive assistant to Chairman Rentzel.

Airport Landscape Problems Discussed in CAA Booklet

"Airport Landscape Planting," is the title of a recent publication of the Civil Aeronautics Administration intended to serve as a guide for airport owners, operators, builders, and others interested in landscaping airports. It provides practical information on how to improve the appearance of an airport and about the landscape problems peculiar to airports.

The 20-page booklet is on sale for 15 cents a copy by the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.

Planes Rout Insects To Save Cotton Crop In Southeast Missouri

Dramatic flights of aerial "dusters" from as far away as 1,000 miles recently saved the cotton crop in the "boothel" section of southeast Missouri from a tremendous horde of cotton leaf worms, according to reports by Civil Aeronautics Administration safety agents who advised in the operation.

Faced with complete destruction of their crop by the sudden and unusual hatching of great numbers of the pest, Sunday, September 3, farmers of the area sent out calls for firms and individuals doing spraying and dusting, and nearly 150 planes gathered within a week, coming from Pennsylvania, New York, Illinois, Florida, Iowa, Kansas, North Dakota, California, Louisiana, Mississippi, Texas, as well as Missouri, and the neighboring States of Tennessee and Arkansas. With some operators dusting as much as 1,400 acres a day in a 2-week, dawn-to-dusk battle against the worms, the scourge was brought under control by September 15, and the flying worm fighters returned home.

Peak of the attack by the worms came over the week end of September 8, 9, and 10, and farmers were in a state of great excitement by that time. Damage was being done by the worms at such a rate that farmers, cotton gin operators and Department of Agriculture workers realized that they could not be stopped by ground methods of dusting or spraying. During this week end nearly 150 planes were operating in the "boothel" section, and farmers were congregated at the airports with money in hand, urging individual pilots to treat their crops.

Agents from the aviation safety district office of the Civil Aeronautics Administration at St. Louis were stationed in the area to advise and assist.

"Extreme mobility of this kind of a spraying operation undoubtedly saved a large and valuable cotton crop," Leonard Jurden, Administrator of the CAA's fifth region at Kansas City, said in discussing the emergency. "This is a dramatic demonstration of the utility of the airplane as a farm vehicle, and of fast and effective cooperation between three great industries, aviation, agriculture, and chemical manufacture."

392 Civil Aircraft Engines Shipped During August 1950

During August 1950, civil aircraft engine manufacturers shipped 392 engines, representing 98,700 horsepower, valued at \$1,048,000, according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census, Department of Commerce. Total value of all shipments by the civil aircraft engine industry—complete engines, spare parts and all other products—was \$4,341,000, an increase of \$2,000,000 over the figure for August 1949.

Detailed figures for August 1950 civil engine shipments follow:

	Civil Aircraft Engine Shipments		
	1950		1949
	August	July	August
Number (total).....	392	377	282
Horsepower (thousands).....	98.7	143.0	61.9
Value (thousand dollars).....	\$4,527	\$5,476	\$2,547
Complete engines.....	1,048	1,748	740
Parts.....	3,293	3,519	1,545
Other products.....	186	209	262

uri

m as
e cot-
theast
otton
Aero-
o ad-

op by
mbers
e area
aying
within
illi-
ornia.
i, and
ansas.
acres
t the
ol by
urned

r the
were
image
that
Agri-
pped
uring
n the
ed at
idual

of the
were

pera-
otton
CAA's
g the
of the
f fast
ndus-
ufac-

950

manu-
8,700
to a
lmin-
ment
y the
spare
n in-
50.
ship-

1949

August

282
61.9
2,547
740
1,545
262

NNAL